

# MONTANA

## Teachers' Retirement System A Component Unit of the State of Montana



## ANNUAL REPORT FISCAL YEAR ENDED JUNE 30, 2005

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Brian Schweitzer, Governor

# **MONTANA**

## **Teachers' Retirement System** **A Component Unit of the State of Montana**

### **ANNUAL REPORT** **FISCAL YEAR ENDED JUNE 30, 2005**

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**Executive Director**

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**Deputy Executive Director**

**Prepared by:**  
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**<http://www.trs.mt.gov>**

**Alternative accessible formats of this document will be provided upon request.**

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# **INTRODUCTORY SECTION**

**EXECUTIVE DIRECTOR'S LETTER OF  
TRANSMITTAL**

**BOARD OF DIRECTORS AND PROFESSIONAL  
CONSULTANTS**



December 20, 2005

Honorable Brian Schweitzer  
Governor of Montana  
Room 204, State Capitol  
Helena, MT 59620

Dear Governor Schweitzer:

On behalf of the Montana Teachers' Retirement Board, we are pleased to present the Montana Teachers' Retirement System Annual Report for the fiscal year ended June 30, 2005. This report is intended to provide comprehensive information on the financial operations of the Montana Teachers' Retirement System (TRS) for the year. Responsibility for the accuracy of the data, and the completeness and fairness of the report rests with the management of the TRS.

This report contains four sections:

1. An Introductory section, which includes this letter of transmittal and a list of the board members, administrative officers and professional consultants.
2. A Financial section containing the independent auditor's report, management's discussion and analysis, and the financial statements with accompanying footnotes, required supplementary information and supporting schedules.
3. An Actuarial section representing the results of our most recent annual actuarial valuation.
4. A Statistical section containing tables of significant data.

The TRS was established by state law in 1937 and has completed its 68<sup>th</sup> year of operation. The TRS is providing services to over 18,200 active members and managing assets valued in excess of \$2.59 billion.

### **Investment Activity**

The TRS investment portfolio posted an overall return of 8.19%, resulting in an increase in the fair market value of its investments. The System's total annualized rate of return over the last five and ten years was 2.87% and 8.19% respectively. This rate of return compares with an actuarial assumed rate of 8% through June 30, 2004 and 7.75% effective July 1, 2004. The Board of Investments (BOI) invests the TRS and other pension portfolios for the long-term

and its investment strategies are designed to provide sufficient returns over time. However, there is no guarantee of future investment performance. Performance in any given year is dependent not only on the BOI's investment performance but also on the performance of the markets themselves, which are impacted by domestic and global economic conditions, interest rates, and government policies. The following table illustrates the actual rate of return versus the benchmark goal, by investment pool, for TRS investments for fiscal year 2005:

	<u>Benchmark</u>	<u>Actual Return</u>	<u>+/- Variance</u>
STIP	2.14	2.30	0.16
RFBP	7.00	8.12	1.12
MDEP	6.32	5.19	(1.13)
MTIP	13.65	14.33	0.68
MPEP	11.23	17.89	6.66

Please refer to Note B of the financial statements for a description of the TRS investments.

### **Conclusion**

The Teachers' Retirement Board is pleased to submit this 2005 annual report to you reflecting an unqualified opinion from the Legislative Audit Division, which can be found on page 11.

On behalf of the Board, I would like to thank the staff, the Board's advisors, and the many people whose commitment, dedication, and proficiency has directly contributed to the continued successful operation of the Montana Teachers' Retirement System. The Teachers' Retirement Board and staff look forward to continuing to serve the educators of Montana.

Sincerely,

David L. Senn  
Executive Director

**TEACHERS' RETIREMENT SYSTEM  
BOARD OF DIRECTORS AND  
PROFESSIONAL CONSULTANTS**

**BOARD OF DIRECTORS**

	Term Expires
SCOTT DUBBS CHAIR Active Member	JUNE 30, 2008
KARI PEIFFER VICE CHAIR Active Member (Classroom Teacher)	JUNE 30, 2007
TIM RYAN Public Representative	JUNE 30, 2009
JAMES TURCOTTE Public Representative	JUNE 30, 2010
MONA BILDEN Active Member	JUNE 30, 2006
DARRELL LAYMAN Retired Member	JUNE 30, 2006

**PROFESSIONAL CONSULTANTS**

MILLIMAN	Actuaries & Consultants Seattle, WA 98101
ICEMILLER	Legal & Business Advisors Indianapolis, IN 46282
ALFRED MUNKSGARD	IT Consultant Thousand Oaks, CA 91362



# **FINANCIAL SECTION**

**INDEPENDENT AUDITOR'S REPORT**

**MANAGEMENT'S DISCUSSION & ANALYSIS**

**STATEMENT OF FIDUCIARY NET ASSETS**

**STATEMENT OF CHANGES  
IN FIDUCIARY NET ASSETS**

**NOTES TO FINANCIAL STATEMENTS**

**REQUIRED SUPPLEMENTARY INFORMATION**

**SUPPORTING SCHEDULES**



# LEGISLATIVE AUDIT DIVISION

Scott A. Seacat, Legislative Auditor  
John W. Northey, Legal Counsel



Deputy Legislative Auditors:  
Jim Pellegrini, Performance Audit  
Tori Hunthausen, IS Audit & Operations  
James Gillett, Financial-Compliance Audit

## INDEPENDENT AUDITOR'S REPORT

The Legislative Audit Committee  
of the Montana State Legislature:

We have audited the accompanying Statement of Fiduciary Net Assets of the Teachers' Retirement System, a component unit of the state of Montana, as of June 30, 2005 and 2004, and the related Statement of Changes in Fiduciary Net Assets for each of the fiscal years then ended. These financial statements are the responsibility of the Teachers' Retirement Board. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Teachers' Retirement System as of June 30, 2005 and 2004, and the changes in fiduciary net assets for each of the fiscal years then ended, in conformity with accounting principles generally accepted in the United States of America.

Management's Discussion and Analysis, the Schedule of Funding Progress, and the Schedule of Contributions from the Employer and Other Contributing Entities are not a required part of the basic financial statements but are supplementary information required by the Governmental Accounting Standard Board. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of the required supplementary information. However, we did not audit the information and express no opinion on it.

Our audit was conducted for the purpose of forming an opinion on the basic financial statements of the Teachers' Retirement System. The Supporting Schedules of Administrative Expenses and Consultant and

Professional Services are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

At July 1, 2005, the system was not actuarially sound with an Unfunded Actuarially Accrued Liability (UAAL) totaling \$903.3 million. In order to comply with a 30-year amortization period the system currently needs a maximum UAAL totaling \$463 million. The asset valuation method spreads any market value gains or losses evenly over the five years after they occur. The asset losses over the last five years have increased the UAAL by about \$500 million.

The Introductory Section, Actuarial Section, and Statistical Section listed in the foregoing table of contents are presented for the purpose of additional analysis and are not a required part of the basic financial statements. Such additional information has not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we express no opinion on it.

Respectfully submitted,

*/s/ James Gillett*

James Gillett, CPA  
Deputy Legislative Auditor

October 7, 2005

## **TEACHERS' RETIREMENT SYSTEM MANAGEMENT'S DISCUSSION AND ANALYSIS**

The following discussion and analysis of the Montana Teachers' Retirement System's (TRS) annual report provides a narrative overview of the TRS's financial activities for the fiscal year ended June 30, 2005 with comparative totals for June 30, 2004. Please read this in conjunction with the transmittal letter presented in the introductory section and the financial statements with accompanying footnotes, required supplementary information with notes, and supporting schedules included later in this financial section.

### **Overview of the Financial Statements**

Because of the long-term nature of a defined benefit pension plan, financial statements alone cannot provide sufficient information to properly reflect the System's ongoing plan perspective.

The financial section consists of two financial statements with footnotes, two schedules of historical trend information with footnotes, and two supporting schedules. The Statement of Fiduciary Net Assets reflects the resources available to pay benefits to retirees and beneficiaries. The Statement of Changes in Fiduciary Net Assets presents the changes that occurred in those resources for the fiscal year ended.

The Schedule of Funding Progress presents historical trend information about the actuarially funded status for the TRS plan from a long-term, ongoing perspective and the progress made in accumulating sufficient assets to pay benefits when due. The Schedule of Contributions from the Employer and Other Contributing Entities displays historical trend data of the annual required employer contributions and the actual contributions made by employers in relation to the requirement.

The Schedule of Administrative Expenses is a presentation of what comprises the administrative expense item as reported on the Statement of Changes in Fiduciary Net Assets. The Schedule of Consultant and Professional Services is used to provide information on fees paid to outside professionals.

### **Financial Highlights**

- The TRS plan net assets increased by \$132.3 million representing a 5.6% increase for the fiscal year ended June 30, 2005.
- Total contributions to the plan also increased by 2.6% from the previous year from \$107.9 million to \$110.7 million.
- Net investment income (fair value of investments plus investment income less investment expense) showed a decrease of \$93.1 million from the previous year. Representing a decrease of approximately 33%.
- Pension benefits and withdrawals paid to beneficiaries and plan members totaled \$165.6 million for the fiscal year, an increase of 6.1% from the previous year.

## Financial Analysis (in millions)

	<u>FY2005</u>	<u>FY2004</u>	<u>Percent Inc/(Dec)</u>
Cash/Cash Equivalents	\$ 31.9	\$ 78.1	(59.2) %
Investments (fair value)	2,540.6	2,362.5	7.5
Liabilities	107.2	109.2	( 1.8)
Net Assets	2,487.1	2,354.8	5.6
Contributions	110.7	107.9	2.6
Net Investment Income	188.7	281.8	(33.0)
Benefit Pmts & Withdrawals	165.6	156.1	6.1
Administrative Expenses	1.56	1.51	.03

- The decrease in cash/cash equivalents is due primarily to a decrease in our number of shares held in the Short Term Investment Pool.
- The decrease in net investment income was due primarily to the decrease of \$39.6 million in the net appreciation of the fair value of our investments from the previous year and a decrease of \$52.7 million in our investment earnings. Also the BOI instituted a policy change in FY2005 for the Montana Private Equity Pool (MPEP) whereby realized gains/losses would remain in the fund and not be distributed to pool participants.
- The increase in benefit payments and withdrawals was due to an increase in the number of retirees and beneficiaries plus the 1.5% guaranteed annual benefit adjustment.

## Overview of the Actuarial Funding

While the financial statements show a positive net investment income return of \$188.7 million for fiscal year 2005, the actuarial return is still less than the actuarial assumed rate of 7.75% as illustrated below. Actuarial gains or losses result when the return on the actuarial value of assets differs from the actuarial investment return assumption.

<u>Fiscal Year</u>	<u>Market Return</u>	<u>Actuarial Return</u>	<u>Actuarial Return over 8.0% Assumption (7.75% effective 7/1/04)</u>
7/1/2000 to 6/30/2001	(5.1)%	9.2%	1.2%
7/1/2001 to 6/30/2002	(7.3)%	3.8%	(4.2)%
7/1/2002 to 6/30/2003	6.2%	1.6%	(6.4)%
7/1/2003 to 6/30/2004	13.3%	2.1%	(5.9)%
7/1/2004 to 6/30/2005	8.0%	2.7%	(5.05)%

The asset losses over the last five years has increased the unfunded actuarial accrued liability (UAAL) by about \$500 million. The root of these losses were the negative market returns of (5.1)% and (7.3)% in the years ending 6/30/2001 and 6/30/2002. The asset valuation method spreads any market value gains or losses evenly over the five years after they occur. As of July 1, 2004 the System had \$131 million in unrecognized asset losses. At July 1, 2005 the

System has \$10 million in unrecognized asset losses. This \$10 million in unrecognized asset losses, if not offset by future gains, will cause the contributions needed to amortize the UAAL in future valuations to increase even further. Therefore, to be actuarially sound in future years, the System will need to incur asset returns well over the new 7.75% assumption or an increase in contribution rates.

The actuarial valuation as of July 1, 2005, was completed and distributed in October 2005. Based on the results of this valuation the TRS Board will recommend options to the Legislature that are considered necessary to be actuarially sound.

**TEACHERS' RETIREMENT SYSTEM  
A COMPONENT UNIT OF THE STATE OF MONTANA  
STATEMENT OF FIDUCIARY NET ASSETS  
JUNE 30, 2005 AND 2004**

	<u>2005</u>	<u>2004</u>
<b>ASSETS</b>		
Cash/Cash Equivalents-Short Term		
Investment Pool (Note B)	\$ 31,855,506	\$ 78,154,124
Receivables:		
Accounts Receivable	15,334,314	14,337,374
Interest Receivable	5,709,232	8,055,656
Due from Primary Government	<u>152,802</u>	<u>80,195</u>
Total Receivables	<u>\$ 21,196,348</u>	<u>\$ 22,473,225</u>
Investments, at fair value (Note B):		
Mortgages	\$ 43,153,151	\$ 54,989,718
Investment Pools	2,382,433,759	2,189,335,826
Other Investments	7,949,031	9,708,721
Securities Lending Collateral	<u>107,020,752</u>	<u>108,506,737</u>
Total Investments	<u>\$ 2,540,556,693</u>	<u>\$ 2,362,541,002</u>
Assets Used in Plan Operations:		
Land and Buildings	\$ 193,844	\$ 193,844
Less: Accumulated Depreciation	(132,354)	(128,591)
Equipment	147,087	147,087
Less: Accumulated Depreciation	(127,921)	(126,281)
Prepaid Expense	3,126	3,517
Intangible Assets, net of amortization (Note D)	<u>691,795</u>	<u>776,505</u>
Total Other Assets	<u>\$ 775,577</u>	<u>\$ 866,081</u>
<b>TOTAL ASSETS</b>	<u>\$ 2,594,384,124</u>	<u>\$ 2,464,034,432</u>
<b>LIABILITIES</b>		
Accounts Payable	\$ 77,551	\$ 247,108
Due to Primary Government	32,212	327,761
Securities Lending Liability (Note B)	107,020,752	108,506,737
Compensated Absences (Note B)	<u>117,069</u>	<u>108,627</u>
<b>TOTAL LIABILITIES</b>	<u>\$ 107,247,584</u>	<u>\$ 109,190,233</u>
<b>NET ASSETS HELD IN TRUST</b>		
<b>FOR PENSION BENEFITS (A Schedule of</b>		
<b>Funding Progress is presented on page 27)</b>	<u>\$ 2,487,136,540</u>	<u>\$ 2,354,844,199</u>

*The accompanying Notes to the Financial Statements are an integral part of this financial statement.*

**TEACHERS' RETIREMENT SYSTEM  
A COMPONENT UNIT OF THE STATE OF MONTANA  
STATEMENT OF CHANGES IN FIDUCIARY NET ASSETS  
FISCAL YEARS ENDED JUNE 30, 2005 AND 2004**

	<u>2005</u>	<u>2004</u>
<b>ADDITIONS</b>		
Contributions:		
Employer	\$ 57,150,364	\$ 55,773,716
Plan Member	52,900,262	51,382,941
Other	<u>655,812</u>	<u>770,379</u>
Total Contributions	\$ 110,706,438	\$ 107,927,036
Misc Income	\$ 98	\$ 53
Workers Comp. Dividend	0	199
Investment Income:		
Net Appreciation in Fair Value of Investments	\$ 112,888,982	\$ 152,473,601
Investment Earnings	79,373,616	132,052,991
Security Lending Income (Note B)	<u>2,460,271</u>	<u>1,153,276</u>
Investment Income	\$ 194,722,869	\$ 285,679,868
Less: Investment Expense	3,701,090	2,948,793
Less: Security Lending Expense (Note B)	<u>2,287,406</u>	<u>938,082</u>
Net Investment Income	<u>\$ 188,734,373</u>	<u>\$ 281,792,993</u>
Total Additions	<u>\$ 299,440,909</u>	<u>\$ 389,720,281</u>
<b>DEDUCTIONS</b>		
Benefit Payments	\$ 161,247,366	\$ 150,270,797
Withdrawals	4,340,382	5,843,069
Administrative Expense	1,560,820	1,506,694
Loss on Intangible Assets (Note D)	<u>0</u>	<u>889,782</u>
Total Deductions	<u>\$ 167,148,568</u>	<u>\$ 158,510,342</u>
<b>NET INCREASE (DECREASE) IN FIDUCIARY NET ASSETS</b>	\$ 132,292,341	\$ 231,209,939
<b>NET ASSETS HELD IN TRUST FOR PENSION BENEFITS</b>		
<b>BEGINNING OF YEAR</b>	<u>2,354,844,199</u>	<u>2,123,634,260</u>
<b>END OF YEAR</b>	<u>\$2,487,136,540</u>	<u>\$2,354,844,199</u>

*The accompanying Notes to the Financial Statements are an integral part of this Financial Statement.*

**TEACHERS' RETIREMENT SYSTEM  
A COMPONENT UNIT OF THE STATE OF MONTANA  
NOTES TO THE FINANCIAL STATEMENTS  
FISCAL YEARS ENDED JUNE 30, 2005 AND 2004**

**NOTE A. DESCRIPTION OF PLAN**

The Teachers' Retirement Board is the governing body of a mandatory multiple-employer cost-sharing defined benefit pension plan, which provides retirement services to persons in Montana employed as teachers or professional staff of any public elementary or secondary school, community college or unit of the university system. The system was established by the state of Montana in 1937 to provide retirement, death and disability benefits and is governed by Title 19, chapter 20, of the MCA.

At June 30, 2005, the number and type of reporting entities participating in the system were as follows:

Local School Districts	368
Community Colleges	3
University System Units	2
State Agencies	<u>8</u>
Total	381

At June 30, 2005, the system membership consisted of the following:

Retirees and Beneficiaries Currently Receiving Benefits	10,299
Terminated Employees Entitled to But Not Yet Receiving Benefits	10,071
Current Active Members:	
Vested	11,756
Nonvested	<u>6,491</u>
Total Membership	38,617

The pension plan provides retirement benefits and death and disability benefits. Employees with a minimum of 25 years of service or who have reached age 60 with 5 years of service are eligible to receive an annual retirement benefit equal to creditable service years divided by 60 times the average final compensation. Final compensation is the average of the highest three consecutive years of earned compensation. Benefits fully vest after 5 years of creditable service. Vested employees may retire at or after age 50 and receive reduced retirement benefits. A Guaranteed Annual Benefit Adjustment (GABA) of 1.5% is payable each January if the retiree has received at least 36 monthly retirement benefit payments prior to January 1 of the year in which the adjustment is to be made.

## **NOTE B. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

### **Basis of Accounting**

The TRS, a discretely presented component unit Pension Trust Fund of the State of Montana financial reporting entity, maintains its accounts on the accrual basis of accounting. Employee and employer contributions are recognized as revenues in the period in which employee services are performed and expenses are recorded when the corresponding liabilities are incurred, regardless of when payment is made.

### **Compensated Absences**

Compensated absences represent 100 percent of accrued vacation and 25 percent of accrued sick leave for TRS personnel at June 30, 2005 and June 30, 2004.

### **Cash/Cash Equivalents and Investments**

Cash and cash equivalents consist of funds deposited in the State Treasurer's pooled cash account and cash invested in the Short-Term Investment Pool. The Montana Board of Investments (BOI) manages the State's Unified Investment Program, which includes the TRS plan investments as required by Section 19-20-501, Montana Code Annotated. Per the Montana Constitution, Article VIII Section 13(3), investment of TRS assets shall be managed in a fiduciary capacity in the same manner that a prudent expert acting in a fiduciary capacity and familiar with the circumstances would use in the conduct of an enterprise of a similar character with similar aims. TRS assets may be invested in private corporate capital stock.

Investments are reported at fair value. Short-term investments are reported at cost, which approximates fair value. The six areas of investment include: Short-Term Investment Pool (STIP); Retirement Funds Bond Pool (RFBP); Montana Domestic Equity Pool (MDEP); Montana International Equity Pool (MTIP); Montana Private Equity Pool (MPEP), and All Other Funds (AOF).

Securities Lending - Under the provisions of state statutes, BOI, via a Securities Lending Authorization Agreement, authorized the custodial bank, State Street Bank and Trust, to lend the BOI securities to broker-dealers and other entities with a simultaneous agreement to return the collateral for the same securities in the future. During the period the securities are on loan, BOI receives a fee and the custodial bank must initially receive collateral equal to 102 percent, 105% in MTIP, of the fair value of the loaned securities and maintain collateral equal to not less than 100 percent of the fair value of the loaned security. BOI retains all rights and risks of ownership during the loan period.

During fiscal years 2005 and 2004, State Street Bank lent, on behalf of the BOI, certain securities held by State Street, as custodian, and received US dollar currency cash, US government securities, and irrevocable bank letters of credit. State Street does not have the ability to pledge or sell collateral securities unless the borrower defaults.

The BOI did not impose any restrictions during fiscal years 2005 and 2004 on the amount of the loans that State Street Bank made on its behalf. There were no failures by any borrowers

to return loaned securities or pay distributions thereon during fiscal years 2005 and 2004. Moreover, there were no losses during fiscal years 2005 and 2004 resulting from a default of the borrowers or State Street Bank.

During fiscal years 2005 and 2004, the BOI and the borrowers maintained the right to terminate all securities lending transactions on demand. The cash collateral received on each loan was invested, together with the cash collateral of other qualified plan lenders, in a collective investment pool, the Securities Lending Quality Trust. The relationship between the average maturities of the investment pool and the BOI's loans was affected by the maturities of the loans made by other plan entities that invested cash collateral in the collective investment pool, which the BOI could not determine.

Effective June 30, 2005, the TRS implemented the provisions of Governmental Accounting Standards Board (GASB) Statement No. 40 – Deposit and Investment Risk Disclosures. Detailed information demonstrating the risks associated with the TRS plan investments is contained in the State of Montana BOI financial statements, and may be accessed by contacting the Board of Investments at P.O. Box 200126, Helena, MT 59620-0126. The investment risks are described in the following paragraphs.

Credit Risk - Credit risk is defined as the risk that an issuer or other counterparty to an investment will not fulfill its obligation.

The STIP securities and the RFBP fixed income instruments with the exception of the U.S. government securities have credit risk as measured by major credit rating services. The risk is that the issuer of a STIP or RFBP security may default in making timely principal and interest payments. The BOI policy requires that STIP securities have the highest investment grade rating in the short term category by at least one Nationally Recognized Statistical Rating Organization (NRSRO). For the RFBP fixed income investments the BOI policy requires the investments at the time of purchase to be rated an investment grade as defined by Moody's or Standard & Poors's rating services.

Obligations of the U.S. government or obligations explicitly guaranteed by the U.S. government are not considered to have credit risk and do not require disclosure of credit quality.

Custodial Credit Risk - Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, a government will not be able to recover the value of the investment or collateral securities that are in the possession of an outside party.

As of June 30, 2005 and June 30, 2004, all STIP, RFBP, MDEP and MTIP securities were registered in the nominee name for the Montana BOI and held in the possession of the BOI's custodial bank, State Street Bank. According to the STIP Investment Policy, "repurchase agreements require electronic delivery of U.S. Government Treasury collateral, priced at 102 percent market value, to the designated State of Montana Federal Reserve Bank account." All other repurchase agreements were purchased in the State of Montana BOI name. All other investments are registered in the name of the Montana BOI.

Concentration of Credit Risk – Concentration of credit risk is the risk of loss attributed to the magnitude of a government’s investment in a single issuer.

The STIP Investment Policy Statement does not specifically address concentration of credit risk. The policy does provide for “minimum 3% or \$15 million, whichever is higher, to be invested in Repurchase Agreements.” As of June 30, 2005, there were no single issuer investments that exceeded 5% of the STIP portfolio.

According to the RFBP Investment Policy, “with the exception of U.S. government indirect-backed (agency) securities, additional RFBP portfolio purchases will not be made in a credit if the credit risk exceeds 2 percent of the portfolio at the time of purchase”. As of June 30, 2005, the RFBP had a concentration of credit risk exposure to the Federal Home Loan Mortgage Corp of 6.21%. As of June 30, 2004, there were no single issuer investments that exceeded 5% of the RFBP portfolio.

The MDEP investments in pooled investments, such as index funds, are excluded from this requirement. As of June 30, 2005 and 2004 there were no single issuer investments that exceeded 5% of the MDEP portfolio.

Interest Rate Risk – Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. In accordance with GASB Statement No. 40, the BOI selected the effective duration method to disclose interest rate risk.

According to GASB Statement No. 40, interest rate disclosures are not required for STIP since STIP is a 2a-7-like pool. The RFBP and AOF investment policies do not formally address interest rate risk.

Foreign Currency Risk – Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment.

The MTIP has significant investments in 19 foreign countries. Future economic and political developments in these countries could adversely affect the liquidity or value, or both, of the securities held by the funds in which MTIP is invested. At June 30, 2005 approximately 39.5% of the TRS MTIP portfolio is held in foreign currencies.

The TRS investments subject to credit and interest rate risk at June 30, 2005 and June 30, 2004 are categorized below:

<u>Investment</u>	Fair Value		Rating		Duration	
	6/30/05	6/30/04	6/30/05	6/30/04	6/30/05	6/30/04
STIP	\$ 27,619,404	NA	A1+	NA	NA	NA
RFBP	704,451,127	617,565,665	AA-	AA-	4.95	6.63

\*NA (not applicable)

The securities in the RFBP have a maturity ranging from 8/1/2005 to 6/12/2041.

The investment security type MTIP is subject to foreign currency risk at June 30, 2005 as categorized below converted to value in U.S. dollars:

Currency	Carrying Amount 6/30/05	Fair Value 6/30/05	% of Total Investment
Australian Dollar	9,324,767	13,069,609	3.4
France Euro	4,807,346	7,074,643	1.8
Germany Euro	955,424	1,263,926	0.3
Hong Kong Dollar	5,089,469	6,260,393	1.6
Indonesian Rupiah	271,458	389,114	0.1
Ireland Euro	2,726,215	3,132,999	0.8
Japanese Yen	51,298,738	56,043,593	14.5
Malaysian Ringgit	1,471,655	1,532,945	0.4
Netherlands Euro	5,662,069	6,627,187	1.7
New Taiwan Dollar	5,888,132	6,709,912	1.7
New Zealand Dollar	264,615	306,603	0.1
Philippine Peso	725,708	780,675	0.2
Portugal Euro	517,596	511,181	0.1
Pound Sterling	15,085,390	17,289,154	4.5
Singapore Dollar	2,376,100	2,745,693	0.7
South Korean Won	4,385,293	6,224,339	1.6
Spain Euro	5,815,699	8,740,826	2.3
Swiss Franc	12,149,069	13,106,742	3.4
Thailand Baht	927,900	1,120,783	0.3
US Dollar	194,717,022	231,326,060	59.7
Total	324,459,665	384,256,377	99.2

1. STIP as per Montana Code Annotated (MCA) sections 17-6-201, 202 and 204, requires investments by state agencies of available funds. The STIP unit value is fixed at \$1 for both participant buys and sells. The STIP portfolio may include asset-backed securities, commercial paper, corporate and government securities, repurchase agreements, and variable-rate (floating-rate) instruments to provide diversification and a competitive rate of return.

According to the Governmental Accounting Standards Board (GASB) Statement No. 31, Accounting and Financial Reporting for Certain Investments and External Investment Pools, STIP is considered an external investment pool. An external investment pool is defined as an arrangement that pools the monies of more than one legally separate entity and invests, on the participant's behalf, in an investment portfolio. STIP is also classified as a "2a7-like" pool. A 2a7-like pool is an external investment pool that is not registered with the Securities and Exchange Commission (SEC) as an investment company, but has a policy that it will, and does, operate in a manner consistent with the SEC's Rule 2a7 of the Investment Company Act

of 1940. If certain conditions are met, 2a7-like pools are allowed to use amortized cost rather than fair value to report net assets to compute unit values. The BOI has adopted a policy to treat STIP as a 2a7-like pool.

2. The RFBP portfolio includes securities classified as corporate, foreign government bonds, U.S. government direct-backed, U.S. government indirect-backed, and cash equivalents. U.S. government direct-backed securities include direct obligations of the U.S. Treasury and obligations explicitly guaranteed by the U.S. government. U.S. government indirect-backed obligations include U.S. government agency and mortgage-backed securities. U.S. government mortgage-backed securities reflect participation in a pool of residential mortgages. Unit values are calculated weekly and at month end based on portfolio pricing. Unit value at June 30, 2005 and June 30, 2004 was \$105.31 per unit and \$104.32 per unit respectively.

As of June 30, 2005, Delta Airlines Corp. presented a higher credit risk to the BOI. The RFBP holds \$3 million par 10.0% Delta Airlines Corp. bond maturing June 5, 2013, a \$1.971 million par 10.0% Delta Airlines Corp. bond maturing June 5, 2011 and a \$6 million par 10.14% Delta Airlines Corp. bond maturing August 14, 2012. Due to a weak credit outlook and potential bankruptcy, the BOI stopped the interest income accruals after the December 2004 and February 2005 pay dates. Although the interest accruals were stopped, the BOI received the interest due in June 2005 and August 2005. The combined book value of these securities was \$10,949,050 as of June 30, 2005. Due to the company's filing for Chapter 11 bankruptcy protection on September 14, 2005, the book values were reduced to \$1.5 million, \$985,500 and \$3 million, respectively.

As of June 30, 2005, Northwest Airlines Inc. presented a higher credit risk to the BOI. The RFBP held a \$9,930,036 par 6.81% Northwest Airlines Inc. bond maturing February 1, 2020, a \$7,802,614 par 7.935% Northwest Airlines Inc. MBIA Insurance Corp. insured bond maturing April 1, 2019 and a \$5,745,000 par 4.64% Northwest Airlines Inc. real estate backed bond maturing July 7, 2010. The combined book value of these securities was \$22,989,339 as of June 30, 2005. On September 14, 2005, the company filed for Chapter 11 bankruptcy protection. Due to this action, the BOI stopped the interest income accruals for the 6.81% bond maturing February 1, 2020 after the August 2005 pay date. This issue was sold on September 20, 2005 generating a loss of \$642,183. The sale included accrued interest from August 1, 2005 to September 20, 2005. Since the 7.935% bond maturing April 1, 2019 is insured by MBIA Insurance Corp. to support the payment of any interest due and outstanding principal balance, the BOI did not stop the interest income accrual or reduce book value. The 4.64% bond maturing July 7, 2010 is secured by Northwest Airlines Inc.'s corporate headquarters building and land.

As of June 30, 2005 and June 30, 2004, Burlington Industries, Inc. presented a legal and higher credit risk to the BOI. The BOI owns a Burlington Industries, Inc., \$6 million par, 7.25% bond maturing September 15, 2005. In September 2000, the company announced a reduction of stockholders equity. Due to an increasing senior bank line and declining credit trend, the bond ratings for this issue were downgraded, in May 2001, by the Moody's and Standard & Poor's rating agencies. During fiscal year 2001, the book value of Burlington Industries Inc. was reduced from the August 31, 2000 book value of \$5,609,640 to \$2,400,000. Due to the company's filing for Chapter 11 bankruptcy protection on November 11, 2001, the book value was reduced to \$1,200,000. In October 2003, Burlington Industries, Inc. received court

approval to sell its assets. Under the company's recovery plan, the BOI received \$1,454,961 in August 2004 for its unsecured claim. This transaction reduced the book value to \$0 and generated a gain of \$254,961. In February 2005 and May 2005, the BOI received an additional \$208,771 and \$194,247, respectively, for its unsecured claim. The BOI is expected to receive additional proceeds over the next two to three years.

As of June 30, 2004, Winn Dixie presented a higher credit risk to the BOI. The RFBP held a Winn Dixie Trust, \$70 million par, zero coupon bond maturing September 1, 2024. Due to a weak credit outlook and collateral uncertainty, the BOI stopped accruing income and reduced the book value to \$5.2 million in February 2004. On February 21, 2005, Winn Dixie declared bankruptcy. On February 28, 2005, the BOI sold the bonds and recorded a \$4.6 million gain.

#### DEUTSCHE BANK SECURITIES, INC. COMPLAINT

The BOI received a summons and complaint, dated September 3, 2002, regarding the sale of a Pennzoil Quaker State, \$5 million par, 6.75% corporate bond maturing April 1, 2009. Deutsche Bank Securities claims a "breach of contract" for the March 25, 2002 sale of the bond at a price of \$94.669 plus accrued interest. Deutsche Bank Securities seeks damages of \$538,632 for the additional costs incurred to acquire the bond from third parties, plus any statutory interest, costs and expenses. On October 1, 2002, Shell Oil Company acquired Pennzoil and subsequently announced a public tender of Pennzoil Quaker State debt. The BOI tendered the Pennzoil Quaker State holdings on October 8, 2002 at a price of \$113.099. The tender was accepted with a settlement date of November 1, 2002. On November 4, 2002, the BOI received \$5,683,075 in principal and interest plus \$150,000 as a consent fee. As of September 23, 2005, this matter is still pending.

3. The MDEP portfolio may include common stock, equity index, preferred stock, convertible equity securities, American Depositary Receipts and equity derivatives. Unit value at June 30, 2005 and June 30, 2004 was \$128.67 per unit and \$122.95 per unit respectively.

#### OWENS-CORNING COMPLAINT

On October 11, 2002, the BOI received a summons and complaint regarding the bankruptcy of Owens-Corning. The company seeks a determination that the dividend payments paid from October 1996 through July 2000 represent "fraudulent transfers under Chapter 11 Bankruptcy provisions and applicable state law, and are, therefore, voidable". The complaint states the Montana Board of Investments was the "recipient of dividends in the amount of \$357,099 for the relevant period". The BOI has prepared a response to the complaint.

4. The MTIP portfolio includes equity investments in six funds - BOI Internal International through January 2004, Pyrford International, Schroder Investment Management NA, Nomura Asset Management U.S.A, Inc. from December 2003, SG Yamaichi Asset Management Co. through October 2003, the BGI MSCI Europe Index Fund, the BGI All Country Pacific Index Strategy Fund and DFA International Small Company Portfolio. The six funds may invest in securities of foreign-based corporations listed on legal and recognized foreign exchanges as well as domestic exchanges. Security types may include ordinary common shares, preferred shares, convertible securities, ADRs, Global Depositary Receipts (GDR's), and other global securities, as appropriate. Unit values are calculated weekly and once a month at the close of

the last business day of the month, based upon the fair value of the MTIP equity holdings, other assets and liabilities. Unit value at June 30, 2005 and June 30, 2004 was \$121.64 per unit and \$107.70 per unit respectively.

5. The MPEP portfolio includes venture capital, leveraged buyout, mezzanine, distressed debt, special situation and secondary investments. Venture capital represents private equity investments in early stage financing of rapidly growing companies with an innovative product or service. Leveraged buy-outs permit an investment group to acquire a company by leveraging debt, as a financing technique, to establish a significant ownership position on behalf of the company's current management team. Mezzanine investments are the subordinated debt and/or equity of privately owned companies. Distressed debt represents the private and public debt of companies that appear unlikely to meet their financial obligations. Special situation investments include the investment in the exploration for oil and/or gas reserves or in the development of proven reserves, investment in land to harvest timber, and investments that have a special component usually related to geographical, economic, or social issues. Secondary investments are investments in previously owned limited partnerships. Private equity investments are long-term, by design, and very illiquid. Due to the complexity and specialization of private equity investment, the BOI contracts with external private equity managers to invest in venture capital, leveraged buyout and other private equity investments.

Unit value at June 30, 2005 and June 30, 2004 was \$116.06 and \$99.26 per unit respectively. The unit value is calculated at month end.

6. The AOF investments are purchased in accordance with the statutorily mandated "Prudent Expert Principle" and applicable investment restrictions of the participants. The AOF portfolio includes residential mortgages, multifamily commercial loans and real estate investments. In November and December 2004, the multifamily commercial loans held by TRS were sold to the Coal Severance Tax Trust Fund. The real estate investments and mortgages are valued based on a discounted cash flow.

Real Estate - In January 1996, the BOI, on behalf of the Public Employees' and Teachers' Retirement funds, purchased the 100 North Park Avenue Building in Helena, Montana as a real estate investment. Acquired for a cost of \$4,864,326, the building carries a fair value of \$6,024,526 as of June 30, 2005. During fiscal year 2005, building improvements for tenant remodeling, video conferencing, heating/cooling, parking lot resurfacing and leasing fees totaling \$151,567 were added to the cost of the building. Building improvements and leasing fees totaling \$453,209 were added to the cost of the building in fiscal year 2004. The three-story building provides office space for approximately eight to ten tenants.

In August 1997, the BOI authorized the construction of an office building at 2401 Colonial Drive in Helena, as a real estate investment owned equally by the Public Employees' and Teachers' Retirement funds. In fiscal year 2005, parking lot resurfacing and heating/cooling improvements of \$48,838 were added to the building cost. For fiscal year 2004, \$55,287 was expended on building improvements and leasing fees. The three-story building was constructed for a cost of \$6,481,741 and provides office space for three tenants. As of June 30, 2005, the building carries a cost and fair value of \$7,090,594 and \$7,581,000, respectively.

In August 1999, the BOI authorized the purchase of a new office building in Bozeman, Montana. Construction was completed in March 2004. The Public Employees' and Teachers' Retirement funds purchased the building, as a real estate investment with equal ownership, for \$2,051,032. In fiscal year 2005, telecommunication system payments of \$10,238 were added to the building cost. The building, located on state school trust land, is occupied by four state agencies. As of June 30, 2005, the building carries a fair value of \$2,082,014.

#### DEUTSCHE BANK SECURITIES, INC. COMPLAINT

The BOI received a summons and complaint, dated September 3, 2002, regarding the sale of a Pennzoil Quaker State, \$2 million par, 6.75% corporate bond maturing April 1, 2009. Deutsche Bank Securities claims a "breach of contract" for the March 25, 2002 sale of the bond at a price of \$94.669 plus accrued interest. Deutsche Bank Securities seeks damages of \$215,453 for the additional costs incurred to acquire the bond from third parties, plus any statutory interest, costs and expenses. On October 1, 2002, Shell Oil Company acquired Pennzoil and subsequently announced a public tender of Pennzoil Quaker State debt. The BOI tendered the Pennzoil Quaker State holdings on October 8, 2002 at a price of \$113.099. The tender was accepted with a settlement date of November 1, 2002. On November 4, 2002, the BOI received \$2,273,230 in principal and interest plus \$60,000 as a consent fee. As of September 23, 2005, this matter is still pending.

#### NOTE C. CONTRIBUTIONS

The TRS funding policy provides for monthly employee and employer contributions at rates specified by state law. Plan members are currently required to contribute 7.15% of their earned compensation and employers contribute 7.47% of earned compensation. The State General Fund contributes an additional 0.11% of earned compensation. Each employer in the Montana university system shall contribute to the TRS a supplemental employer contribution currently at a rate of 4.04% of the total compensation of employees participating in the Optional Retirement Program (ORP). An actuary determines the actuarial implications of the funding requirement in biennial actuarial valuations. The actuarial method used to determine the implications of the statutory funding level is the entry age actuarial cost method, with both normal cost and amortization of the accrued liability determined as a level percentage of payroll. The actuarial valuation prepared as of July 1, 2005, the most recent valuation date, indicates the statutory rate is insufficient to fund the normal cost and to amortize the unfunded accrued liability under the entry age actuarial cost method over 30 years. The unfunded actuarial accrued liability is included in the Schedule of Funding Progress.

#### NOTE D. CAPITAL ASSET LOSS

In May of 1999, TRS contracted with BearingPoint, Inc. (formerly KPMG Consulting), to customize, integrate and implement the PeopleSoft Pension Administration, Human Resource and Financials modules. On December 23, 2002, the Board indefinitely suspended the implementation date for the PeopleSoft system in anticipation of discontinuing the contract with BearingPoint. On July 22, 2003 working through a mediator an agreement was reached in which BearingPoint would pay TRS \$1.5 million and the contract would end. TRS received the \$1.5 million payment on September 12, 2003. At that time it was determined the actual value of the usable software development to TRS was \$847,096. This resulted in a net loss on intangible assets of \$889,782 to TRS in fiscal year 2004.

**TEACHERS' RETIREMENT SYSTEM**  
**A COMPONENT UNIT OF THE STATE OF MONTANA**  
**REQUIRED SUPPLEMENTARY INFORMATION**

**Schedule of Funding Progress**  
(All dollar amounts in millions)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liabilities (AAL) <sup>(1)</sup>	Present Value of Future University Supplemental Contributions	Unfunded Actuarial Accrued Liabilities (UAAL) <sup>(2)</sup>	Funded Ratio <sup>(3)</sup>	Covered Payroll <sup>(4)</sup>	UAAL as a Percentage of Covered Payroll
July 1, 1996	\$ 1,376.7	\$ 1,939.6	\$ * <sup>(9)</sup>	\$ 562.9	71.0%	\$ 501.5	112.2%
July 1, 1998 <sup>(5)</sup>	1,809.0	2,123.3	90.6	223.7	89.0	529.8	42.2
July 1, 1998 <sup>(6)</sup>	1,809.0	2,342.7	90.6	443.1	80.3	529.8	83.6
July 1, 2000 <sup>(7)</sup>	2,247.5	2,648.3	96.4	304.4	88.1	537.5	56.6
July 1, 2000 <sup>(8)</sup>	2,247.5	2,652.0	96.4	308.1	87.9	537.5	57.3
July 1, 2002	2,484.8	2,980.1	111.8	383.5	86.6	563.2	68.1
July 1, 2004	2,485.7	3,359.2	115.7	757.8	76.6	600.7	126.2
July 1, 2005	2,497.5	3,527.0	126.2	903.3	73.4	612.6	147.5

(1) Actuarial present value of benefits less actuarial present value of future normal costs based on entry age actuarial cost method.

(2) Actuarial accrued liabilities less actuarial value of assets and present value of future university supplemental contributions.

(3) Funded Ratio is the ratio of the actuarial value of assets over the actuarial accrued liabilities less the present value of future university supplemental contributions.

(4) Covered Payroll includes compensation paid to all active employees on which contributions are calculated. Covered Payroll differs from the Active Member Valuation Payroll shown in Table C-1 of the actuarial section, which is an annualized compensation of only those members who were active on the actuarial valuation date.

(5) Results of July 1, 1998 Actuarial Valuation.

(6) July 1, 1998 results adjusted for 1.5% GABA and \$500 minimum benefit for legislation which passed in Spring 1999 and the new salary scale adopted in November 1998.

(7) Results of July 1, 2000 Actuarial Valuation.

(8) July 1, 2000 results adjusted for \$600 minimum benefit for legislation which passed in Spring 2001.

(9) Not available.

**TEACHERS' RETIREMENT SYSTEM  
A COMPONENT UNIT OF THE STATE OF MONTANA  
REQUIRED SUPPLEMENTARY INFORMATION**

**Schedule of Contributions from the Employer and Other Contributing Entities  
(All dollar amounts in thousands)**

Fiscal Year Ending	Covered Employee Payroll <sup>(1)</sup>	Actual Employer Contributions <sup>(2)</sup>	Actual Employer Contribution % <sup>(2)</sup>	Annual Required Contribution (ARC) % <sup>(3)</sup>	Percentage of ARC Contributed
6/30/1996	\$ 501,516	\$ 40,627	7.47%	7.47%	100%
6/30/1997	511,934	41,640	7.47	7.47	100
6/30/1998	529,795	44,476	7.47	7.47	100
6/30/1999	543,071	44,987	7.47	7.47	100
6/30/2000	537,507	48,376	7.58	7.58	100
6/30/2001	567,861	51,524	7.58	7.58	100
6/30/2002	563,163	51,519	7.58	7.58	100
6/30/2003	597,131	53,277	7.58	7.58	100
6/30/2004	600,728	55,774	7.58	7.58	100
6/30/2005	612,622	57,150	7.58	7.58	100

(1) Computed as the dollar amount of the actual employer contribution made as a percentage of payroll (less ORP and term pay contributions) divided by the contribution rate expressed as a percentage of payroll.

(2) The actual and required employer contributions are expressed as a percentage of payroll. Contributions for termination pay are included in the actual employer contribution, but are not made as a set percentage of payroll. In the Fiscal Year ended June 30, 2005 there were \$6.0 million of contributions for termination pay. Contributions made as a percentage of the salaries of the members in the Optional Retirement Plan (ORP) are included. In the Fiscal Year ended June 30, 2005, \$5.4 million was contributed based on ORP member salaries. The ORP contribution rate varies from year to year.

(3) The State makes employer contributions as a percentage of actual payroll. Thus, as long as the percentage equals the percentage required by the most recent actuarial valuation, the dollar amount of the Annual Required Contributions (ARC) is equal to the actual dollar amount of the required employer contributions.

**TEACHERS' RETIREMENT SYSTEM**  
**A COMPONENT UNIT OF THE STATE OF MONTANA**  
**NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION**

**Actuarial Cost Method**

The actuarial valuation was prepared using the entry age actuarial cost method. Under this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The normal cost was first calculated for each individual member. The normal cost rate is defined to equal the total of the individual normal costs, divided by the total pay rate.

The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets and (b) the actuarial present value of future normal costs is called the unfunded actuarial accrued liability. The unfunded actuarial accrued liability is amortized as a level percentage of the projected salaries of present and future members of the System.

The ultimate cost of any pension program over time equals the benefits paid and expenses incurred while administering the program. The source of revenue used to pay for this cost is equal to the contribution from employers and employees to fund the program, plus investment return earned on contributions made through pre-funding the benefit payments.

**Valuation of Assets - Actuarial Basis**

Adopted July 1, 2000, the actuarial asset valuation method spreads asset gains and losses over five years. The expected return is determined each year based on the beginning of year market value and actual cash flows during the year. Any difference between the expected market value return and the actual market value return is recognized evenly over a period of five years. The gains and losses are measured starting with the fiscal year ended June 30, 1997.

**Investment Earnings**

The annual rate of investment earnings of the assets of the System is assumed to be 7.75%, compounded annually. (Adopted effective July 1, 2004)

**Guaranteed Annual Benefit Adjustment Increases**

On January 1 of each year, the retirement allowance payable must be increased by 1.5% if the retiree's most recent retirement effective date is at least 36 months prior to January 1 of the year in which the adjustment is to be made.

## **Future Salaries**

The rates of annual salary increases assumed for the purpose of the valuation include an assumed 4.5% annual rate of increase in the general wage level of the membership plus a variable merit and longevity rate from 0% to 4.51%. The merit and longevity increases for the Montana University System (MUS) members did not show a pattern of increasing or decreasing with service at the time of our most recent study. Therefore, the MUS members have a flat 1% merit and longevity assumption. The general wage increase assumption was adopted July 1, 2004 and the merit and longevity scales were adopted July 1, 2002.

MUS members are assumed to have a 0.63% higher average final compensation to account for the larger than average annual compensation increases observed in the years immediately preceding retirement.

## **Amortization Period**

The current employer contribution rate of 7.47% and the State General Fund contribution of 0.11% of members' salaries are insufficient to meet the actuarial cost of the System accruing at the valuation date and to amortize the unfunded actuarial liability over an open period of 30 years as of July 1, 2005.

**TEACHERS' RETIREMENT SYSTEM  
A COMPONENT UNIT OF THE STATE OF MONTANA  
SUPPORTING SCHEDULES  
FISCAL YEARS ENDED JUNE 30, 2005 AND 2004**

**ADMINISTRATIVE EXPENSES**

The administrative costs of the TRS are financed through realized investment income. The expenses, less amortization of intangible assets, may not exceed 1.5% of retirement benefits paid. Administrative expenses for the fiscal years ended June 30, 2005 and 2004, are outlined below:

Budgeted Expenses:	<u>2005</u>	<u>2004</u>
Personal Services:		
Salaries	\$ 584,815	\$ 587,001
Other compensation	1,900	2,250
Employee benefits	<u>174,390</u>	<u>164,040</u>
Total Personal Services	<u>\$ 761,105</u>	<u>\$ 753,291</u>
Operating Expenses:		
Contracted services	\$ 481,222	\$ 377,440
Supplies and materials	24,840	26,050
Communications	38,003	40,380
Travel	12,770	13,172
Rent	42,437	41,184
Repair and maintenance	53,078	40,948
Other expenses	<u>48,810</u>	<u>46,384</u>
Total Operating	<u>\$ 701,160</u>	<u>\$ 585,558</u>
Non-Budgeted Expenses:		
Compensated Absences	8,442	4,522
Depreciation	5,403	8,979
Amortization of Intangible Assets	<u>\$ 84,710</u>	<u>\$ 154,344</u>
Total Non-Budgeted	<u>\$ 98,555</u>	<u>\$ 167,845</u>
<b>Total Administrative Expense</b>	<b><u>\$ 1,560,820</u></b>	<b><u>\$ 1,506,694</u></b>

**CONSULTANT AND PROFESSIONAL SERVICES**

	<u>2005</u>	<u>2004</u>
Personnel Management	\$ 3,263	\$ 4,125
Actuarial Services	150,859	45,764
Legal Services	4,306	31,669
Medical Evaluations	1,180	1,025
Audit Services	5,447	26,099
Information Technology Services	<u>177,735</u>	<u>105,045</u>
<b>Total Expense</b>	<b><u>\$ 342,790</u></b>	<b><u>\$ 213,727</u></b>



# **ACTUARIAL SECTION**

## **ANALYSIS OF VALUATION**

- 1. SUMMARY OF FINDINGS**
- 2. SCOPE OF THE REPORT**
- 3. ASSETS**
- 4. ACTUARIAL PRESENT VALUE  
OF FUTURE BENEFITS**
- 5. EMPLOYER CONTRIBUTIONS**
- 6. CASH FLOWS**

## **APPENDICES**



**Teachers' Retirement System**  
**A Component Unit of the State of Montana**

**Section 1**

**Summary of Findings**

As a result of the actuarial valuation of the benefits in effect under the Montana Teachers' Retirement System as of July 1, 2005, we recommend that the current employer contribution rate, 7.58% of members' salaries, be increased. The System does not currently meet the requirements of actuarial soundness because the contributions do not amortize the Unfunded Actuarial Accrued Liability over a reasonable period. The 7.58% employer contribution is composed of 7.47% from participating employers and 0.11% from the State General Fund. MCA 19-20-604 states that the employer contribution rate will be reduced by 0.11% when the amortization period of the System's unfunded actuarial accrued liability is 10 years or less according to the System's latest actuarial valuation.

An increase in the employer contribution rate of 4.06% (7.58% to 11.64%) as of July 1, 2006 is projected to maintain an amortization of the unfunded actuarial accrued liability over the 30 years beginning July 1, 2005. A 30-year amortization period is the maximum acceptable amortization period specified in Statements No. 25 and 27 of the Governmental Accounting Standards Board (GASB). It is also the trigger in the Retirement Board's funding policy for recommending to the legislature that funding be increased. The contribution increase could also be phased in over a number of years, or lessened by lowering the value of benefits provided for future members. Note that in a "contract rights" state such as Montana it is unlikely that any decrease in the value of future benefits could be made for current members.

The actuarial costs are calculated using the entry age actuarial cost method. This is the method used by most public plans. It is designed to provide a stable contribution rate as a percent of member pay. This actuarial valuation measures the adequacy of the contribution rates set in Montana State Law.

**Investment Experience**

The 2005 actuarial valuation indicates that an actuarial loss occurred during the preceding fiscal year. The loss is primarily due to lower returns on the assets than expected by the actuarial assumptions, and is reflected in the 2.7% net investment return on an actuarial basis for the past year. The following chart compares the annual returns for the past five years.

<u>Year</u>	<u>Market Return</u>	<u>Actuarial Return</u>	<u>Actuarial Return over Assumption*</u>
7/1/2000 to 6/30/2001	(5.1)%	9.2%	1.2%
7/1/2001 to 6/30/2002	(7.3)%	3.8%	(4.2)%
7/1/2002 to 6/30/2003	6.2%	1.6%	(6.4)%
7/1/2003 to 6/30/2004	13.3%	2.1%	(5.9)%
7/1/2004 to 6/30/2005	8.0%	2.7%	(5.0)%

\* The actuarial assumption was 8.0% through 6/30/2004 and 7.75% thereafter.

Asset gains or losses result when the return on the actuarial value of assets differs from the actuarial investment return assumption of 7.75% (8.0% before July 1, 2004). The actuarial return on assets has under performed the assumption by over 20% in the last five years (combined) as shown in the last column of the chart. Over these five years, the asset losses have increased the unfunded actuarial accrued liability (UAAL) by about \$500 million. The root of these losses is the low market returns of (5.1)% and (7.3)% in the years ending 6/30/2001 and 6/30/2002. The asset valuation method spreads any market value gains or losses evenly over the five years after they occur. Therefore the first fifth of the loss for the year ending 6/30/2002 was recognized at 6/30/2002 and the last fifth will be recognized at 6/30/2006. At July 1, 2002 the System had \$443 million in unrecognized asset losses. At July 1, 2005 the System has \$10 million in unrecognized asset losses. Therefore, the Actuarial Value of Assets is \$10 million larger than the Market Value of Assets. However, \$51.6 million of past market value losses are currently scheduled to be recognized at July 1, 2006 as shown in Table 4. The impact of recognizing this loss can be expected to increase the required contribution rate by 0.50% to 0.60% in the 2006 actuarial valuation. However, at July 1, 2006 the gains from FY2004 will not yet be completely recognized. Gains and losses in the year preceding the July 1, 2006 actuarial valuation may also have an impact. In the past, the legislature has suggested phasing in increases in the contribution rate. This might allow time for the gains from the past two years to offset some of the losses scheduled to be recognized in the next year. However there is no guarantee future investment returns will meet the actuarial assumption of 7.75%.

### **Future Experience**

The future funding status of the System and any changes in future contribution rates will be determined by the System's experience. In the future, the System's actual asset returns, salary increases, and retirement, withdrawal, disability and death rates will all impact the funding status of the System. The current actuarial asset valuation method and the entry age normal cost method will help to provide a more orderly funding of the System's liabilities, but will not change the actual experience. The actuarially determined contribution rate may not be stable, and will reflect the gains and losses.

### **Summary**

The System does not currently meet the requirements of actuarial soundness because the contributions do not amortize the Unfunded Actuarial Accrued Liability over a reasonable period. To stay financially sound in the future, the System will need either (1) future gains such as asset returns well over the 7.75% assumption, or (2) an increase in contribution rates. Contribution increases could be scheduled as either a one time event, or graded over a number of years. Both options are shown in Table 9 and its footnotes.

### **Assumption Changes**

No assumptions were changed for this 2005 valuation.

### **Benefit Changes**

No benefit changes since the July 1, 2004 valuation are reflected in this valuation.

### **Contribution Changes**

There have been no contribution changes since the July 1, 2000 actuarial valuation.

## Impact of Changes

The following table summarizes how experience has changed the Unfunded Actuarial Accrued Liability since the July 1, 2004 Actuarial Valuation.

### Changes in the Unfunded Actuarial Accrued Liability (UAAL)

(In millions)

July 1, 2004 Valuation UAAL funded by TRS contributions	\$757.8
Expected Increase	<u>32.0</u>
Expected July 1, 2005 UAAL	\$789.8
Retired Mortality Loss	0.9
Active Member Experience	
Salary Gain	(\$12.8)
Withdrawal Loss	1.6
Retirement Loss	18.3
Active Member Mortality Gain	(3.0)
Active Member Disability Gain	(0.8)
Total Active Member Experience Loss	\$3.3
Gain from Other Causes	(14.6)
Experience Loss on Actuarial Assets	<u>123.9</u>
July 1, 2005 Valuation UAAL funded by TRS contributions	\$903.3

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**Section 2**

**Scope of the Report**

This report presents the actuarial valuation of the Montana Teachers' Retirement System as of July 1, 2005.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets of the System. Sections 4 and 5 describe how the obligations of the System are to be met under the actuarial cost method in use.

The actuarial procedures and assumptions used in this valuation are described in Appendix A. The current benefit structure, as determined by the provisions of the governing law on July 1, 2005, is summarized in Appendix B. Schedules of valuation data classifying the data used in the valuation by various categories of contributing members, former contributing members, and beneficiaries make up Appendix C. Appendix D provides a brief summary of the System's recent experience. Comparative statistics are presented on the System's membership and contribution rates. Appendix E is a glossary of actuarial terms used in this report.

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**Section 3**

**Assets**

In many respects, an actuarial valuation can be regarded as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is July 1, 2005. On that date, the assets available for the payment of benefits are appraised. These assets are compared with the actuarial liabilities. The actuarial process thus leads to a method of determining what contributions by members and their employers are needed to strike a balance.

The asset valuation method being used is a five-year smoothing method. The expected return is determined each year based on the beginning of year market value and actual cash flows during the year. Any difference between the expected market value return and the actual market value return is recognized evenly over a period of five years.

Table 3 summarizes the determination of the actuarial value of assets. Table 4 shows when asset gains or losses will be recognized in the actuarial value of assets. Table 5 summarizes historical asset returns since July 1, 1994 including the amount recognized by the actuarial asset valuation method which was greater or lesser than the actuarial investment return assumption.

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**Table 3**

**Determination of Actuarial Value of Assets  
July 1, 2005**

**Determination of Recognized Investment Gains and Losses - Five-Year Smoothing**

A. Expected investment return – Year Ended 6/30/2005	\$	180,373,775
B. Actual investment return – Year Ended 6/30/2005	\$	187,173,652
C. Gains/(losses) – 2005 [B – A]	\$	6,799,877
D. Gains/(losses) – 2004	\$	111,433,500
E. Gains/(losses) – 2003	\$	(37,239,499)
F. Gains/(losses) – 2002	\$	(338,875,181)
G. Gains/(losses) – 2001	\$	(310,524,198)
H. Gains/(losses) recognized at July 1, 2005* [1/5 C + 1/5 D + 1/5 E + 1/5 F + 1/5 G]	\$	(113,681,099)

**Determination of Actuarial Assets**

Actuarial value of assets July 1, 2004		\$ 2,485,696,010
Contributions less benefits	\$ (50,881,310)	
Expected investment return	180,373,775	
Recognized investment gains/(losses)	<u>(113,681,099)</u>	<u>11,811,366</u>
<b>Actuarial value of assets July 1, 2005</b>		<b>2,497,507,376</b>
Unrecognized Loss		<u>(10,370,836)</u>
Market Value of Assets July 1, 2005 (Actuarial Value + Unrecognized Gain)	\$	2,487,136,540

Note: The actuarial value of assets is equal to the expected value plus a five-year smoothing of market value gains and losses. The actuarial asset method was adopted for the July 1, 2000 actuarial valuation with actuarial value of assets set equal to market value of assets at July 1, 1996.

\* *Includes rounding adjustment.*

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**Table 4**

**Schedule of Investment Gain/(Loss) Recognition**

Year Ending 06/30	Market Value Investment Gain/(Loss) Over Expected	Investment Gain/(Loss) Recognized in Past Years				Investment Gain/(Loss) Recognized in Current Year	Investment Gain/(Loss) to be Recognized in Future Years			
		2001	2002	2003	2004		2005	2006	2007	2008
1997	\$166.1	\$33.2								
1998	\$147.9	\$29.6	\$29.6							
1999	\$78.9	\$15.8	\$15.8	\$15.8						
2000	(\$3.7)	(\$0.7)	(\$0.7)	(\$0.7)	(\$0.7)					
2001	(\$310.5)	(\$62.1)	(\$62.1)	(\$62.1)	(\$62.1)	(\$62.1)				
2002	(\$338.9)		(\$67.8)	(\$67.8)	(\$67.8)	(\$67.8)	(\$67.8)			
2003	(\$37.2)			(\$7.4)	(\$7.4)	(\$7.4)	(\$7.4)	(\$7.4)		
2004	\$111.4				\$22.3	\$22.3	\$22.3	\$22.3		
2005	\$6.8				\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4
2006	\$0.0							\$0.0	\$0.0	\$0.0
2007	\$0.0								\$0.0	\$0.0
2008	\$0.0									\$0.0
2009	\$0.0									\$0.0

**Total Gain/(Loss) Recognized at Each Valuation Date**

Recognized				Scheduled to be Recognized*				
\$15.7	(\$85.3)	(\$122.3)	(\$115.8)	(\$113.7)	(\$51.6)	\$16.2	\$23.6	\$1.4

**Unrecognized Gain/(Loss) Remaining**

(\$10.4)	\$41.2	\$25.0	\$1.4	(\$0.0)
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\* The total gain/(loss) actually recognized in each future year will include additional amortizations of future gains and/or losses.

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**Table 5**

**Historical Investment Returns\***

<b>Fiscal Year Ending</b>	<b>Market Returns</b>	<b>Actuarial Return</b>	<b>Actuarial Return Over 8.0% Assumption</b>
June 30, 1995	15.7%	8.9%	0.9%
June 30, 1996	12.4	10.4	2.4
June 30, 1997	19.4	14.9	6.9
June 30, 1998	16.6	16.0	8.0
June 30, 1999	11.9	12.3	4.3
June 30, 2000	7.8	12.8	4.8
June 30, 2001	(5.1)	9.2	1.2
June 30, 2002	(7.3)	3.8	(4.2)
June 30, 2003	6.2	1.6	(6.4)
June 30, 2004	13.3	2.1	(5.9)
<b>Fiscal Year Ending</b>	<b>Market Returns</b>	<b>Actuarial Return</b>	<b>Actuarial Return Over 7.75% Assumption</b>
June 30, 2005	8.04	2.71	(5.04)

*\* Returns reflect all investment returns, including investment income and realized and unrealized investment gains and losses, and are net of investment expenses and administrative expenses paid by the System.*

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**Section 4**

**Actuarial Present Value of Future Benefits**

In the previous section, an actuarial valuation was related to an inventory process, and an analysis was given of the inventory of assets of the System as of the valuation date, July 1, 2005. In this section, the discussion will focus on the commitments of the System, which will be referred to as its actuarial liabilities.

Table 6 contains an analysis of the actuarial present value of all future benefits for contributing members, for former contributing members, and for beneficiaries. The analysis is given by type of benefit.

The actuarial liabilities summarized in Table 6 include the actuarial present value of all future benefits expected to be paid with respect to each member covered as of the valuation date. For an active member, this value includes a measure of both benefits already earned and future benefits to be earned. Thus, for all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and, if an optional benefit is chosen, for the lives of their surviving beneficiaries.

The actuarial valuation does not recognize liabilities for employees who become members and participate in the System after the valuation date.

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**Table 6**

**Actuarial Present Value of Future Benefits**  
**for Contributing Members, Former Contributing**  
**Members, and Beneficiaries**  
 (All amounts are actuarial present values in millions)

	<b>July 1, 2005</b>	<b>July 1, 2004</b>
	<b>Total</b>	<b>Total</b>
<b>A. Active members</b>		
Service retirement	\$ 1,870.9	\$ 1,813.3
Disability retirement	22.1	21.5
Survivors' benefits	43.5	42.7
Vested Retirement	31.9	31.5
Refund of Member Contributions	32.0	31.7
Total	\$ 2,000.4	\$ 1,940.7
<b>B. Inactive members and annuitants</b>		
Service retirement	\$ 1,780.3	\$ 1,675.1
Disability retirement	17.7	17.1
Beneficiaries*	111.3	107.2
Vested terminated members	57.0	54.6
Nonvested terminated members	12.9	11.3
Total	\$ 1,979.2	\$ 1,865.3
<b>C. Grand Total</b>	<b>\$ 3,979.6</b>	<b>\$ 3,806.0</b>

\* *Includes survivors of active and retired members, and children's benefits.*

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**Section 5**

**Employer Contributions**

In the previous two sections, attention has been focused on the assets and the present value of all future benefits of the System. A comparison of Tables 3 and 6 indicates that there is a shortfall in current actuarial assets to meet the present value of all future benefits for current members and beneficiaries. This is the universal experience in all but a fully closed-down fund where no further contributions of any sort are anticipated.

In an active system, there will always be a difference between the assets and the present value of all future benefits. This difference has to be funded with future contributions and investment returns. An actuarial valuation sets a schedule of future contributions that will deal with this funding in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. For this valuation, the entry age actuarial cost method has been used. A description of the entry age actuarial cost method is provided in Appendix A. Under this method, or essentially any actuarial cost method, the contributions required to meet the difference between current assets and the present value of all future benefits are allocated each year between two elements:

- A normal cost amount, which ideally is relatively stable as a percentage of salary over the years; and
- Whatever amount is left over, which is used to amortize what is called the unfunded actuarial accrued liability.

The two items described above, normal cost and unfunded actuarial accrued liability, are the keys to understanding the actuarial cost method. Let us first discuss the normal cost.

The normal cost is the theoretical contribution rate, which will meet the ongoing costs of a group of average new employees. Suppose that a group of new employees were covered under a separate fund from which all benefits and to which all contributions and associated investment return were to be paid. Under the entry age actuarial cost method, the normal cost contribution rate is that level percentage of pay which would be exactly right to maintain this fund on a stable basis. If experience were to follow the actuarial assumptions exactly, the fund would be completely liquidated with the last payment to the last survivor of the group.

We have determined the normal cost rates separately by type of benefit under the System. These are summarized in Table 7.

The term "fully funded" is often applied to a system where contributions for everyone at the normal cost rate will fully pay for the benefits of existing as well as new employees. Often, systems are not fully funded, either because of benefit improvements in the past that have not been completely paid for or actuarial deficiencies that have occurred because experience has not been as favorable as anticipated. Under these circumstances, an unfunded actuarial accrued liability (UAAL) exists.

Table 8 shows how the UAAL was derived for the System. Lines A and B show, respectively, the total present value of future benefits and the portion of the future liability that is expected to be paid from future normal cost contributions, both employer and employee. Line C shows the actuarial accrued liability: the portion of the present value of future benefits not provided by future normal cost contributions. Line D shows the actuarial value of assets available for benefits. Line E shows the unfunded actuarial accrued liability. Lines F and G show the impact of the present value of future scheduled university supplemental contributions (described below) on the unfunded actuarial accrued liability.

As can be seen from this discussion, a key consideration in the adequacy of the funding of the System is how the UAAL is being amortized. Table 9 shows that the current employer and member contribution rates are adequate to pay the total normal cost rate (10.35% of pay), but do not have enough left over to amortize the UAAL over a reasonable period. Therefore, the current basis is not sufficient to meet future requirements.

An increase in the employer contribution rate of 4.06% (7.58% to 11.64%) as of July 1, 2006 is projected to maintain an amortization of the unfunded actuarial accrued liability over the 30 years beginning July 1, 2005. A 30 year amortization period is the maximum acceptable amortization period specified in Statements No. 25 and 27 of the Governmental Accounting Standards Board (GASB). It is also the trigger in the Retirement Board's funding policy for recommending to the legislature that funding be increased.

The amortization of the UAAL assumes university supplemental contributions are made as a percent of pay for members of the Optional Retirement Plan (ORP) until June 30, 2033. Under Section 19-20-621, periodic separate valuations are to be performed to measure the liabilities of benefits to be paid under the Teachers' Retirement System (TRS) for Montana University System (MUS) members. As of the 1996 valuation, there was a \$98.0 million difference, or shortfall, which is to be funded as a level percentage of future ORP salaries from July 1, 1997 to June 30, 2033. The single contribution rate determined as of July 1, 1997 was 3.97%. However, the following graded schedule for increasing the supplemental university contributions was adopted:

<b>Supplemental University Contribution Rate</b>	<b>Fiscal Years Ending</b>
2.81%	June 30, 1998
3.12%	June 30, 1999
3.42%	June 30, 2000
3.73%	June 30, 2001
4.04%	June 30, 2002 to June 30, 2033

The July 1, 2004 actuarial valuation of the MUS calculated a \$144.4 million difference or shortfall between the value of MUS member benefits (not including GABA) and the value of MUS assets and future MUS member contributions. The contribution schedule has not been changed. The value of future supplemental university contributions included in the July 1, 2005 TRS valuation is \$126.2 million based on the assumed 4.04% contribution rate.

Table 10 illustrates the pattern of the total TRS contribution rate needed to amortize the unfunded actuarial accrued liability over the next 30 years. The amortization payments for each year and their present values are also shown.

The unfunded actuarial accrued liability at any date after establishment of a system is affected by any actuarial gains or losses arising when the actual experience of the system varies from the experience anticipated by the actuarial assumptions used in the valuations. To the extent actual experience as it develops differs from the assumptions used, so also will the actual emerging costs differ from the estimated costs. The impact of these differences in actual experience from the assumptions is included in Section 1, the Summary of Findings.

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**Table 7**

**Normal Cost Contribution Rates**  
**As Percentages of Salary**

	<b>July 1, 2005</b>	<b>July 1, 2004</b>
	<b>Total</b>	<b>Total</b>
Service retirement	7.87%	7.87%
Disability retirement	0.16	0.15
Survivors' benefits	0.26	0.26
Vested retirement	0.63	0.63
Refund of member contributions	<u>1.43</u>	<u>1.43</u>
Total	10.35%	10.34%

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**Table 8**

**Unfunded Actuarial Accrued Liability**  
 (All dollar amounts in millions)

	<b>July 1, 2005</b>	<b>July 1, 2004</b>
A. Actuarial present value of all future benefits for present and former members and their survivors (Table 4)	\$ 3,979.6	\$ 3,806.0
B. Less actuarial present value of total future normal costs for present members	<u>452.6</u>	<u>446.8</u>
C. Actuarial accrued liability	\$ 3,527.0	\$ 3,359.2
D. Less actuarial value of assets available for benefits (Table 3)	<u>2,497.5</u>	<u>2,485.7</u>
E. Unfunded actuarial accrued liability	\$ 1,029.5	\$ 873.5
F. Less present value of future university supplemental contributions*	<u>126.2</u>	<u>115.7</u>
G. Unfunded actuarial accrued liability funded by TRS contributions	\$ 903.3	\$ 757.8

*\*Paid by contributions to TRS made as a percentage of the salaries of the participants in the Optional Retirement Plan (ORP) to fund Montana University System member benefits. The percentage of salary will be a level 4.04% for the Fiscal Years through 2033.*

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**Table 9**

**Recommended Contribution Rates  
As Percentages of Salary**

	<u>July 1, 2005</u>	<u>July 1, 2004</u>
A. Employer contribution rate*	7.58%	7.58%
B. Member contribution rate	<u>7.15</u>	<u>7.15</u>
C. Total contribution rate	14.73%	14.73%
D. Less total normal cost rate (Table 7)	<u>10.35</u>	<u>10.34</u>
E. Amount available to amortize unfunded actuarial accrued liability** (C – D)	4.38%	4.39%
F. Amortization period from Valuation Date**	N/A	N/A
G. 30 year amortization contribution rate increase**	4.06%	2.87%
H. Total 30 year UAAL amortization rate (E + G)	8.44%	7.26%
I. Total 30 year contribution rate (D + H)	18.79%	17.60%

*\* In accordance with MCA 19-20-604, the employer contribution rate will be reduced by 0.11% when the amortization period of the System's unfunded actuarial accrued liability is 10 years or less according to the System's latest actuarial valuation. This is reflected in all relevant calculations in this report.*

*\*\* As of July 1, 2004, the unfunded actuarial accrued liability does not amortize over a reasonable period. The employer contribution rate would have to be increased by 4.06% starting July 1, 2006 to maintain an amortization of the unfunded actuarial accrued liability over the 30-year period starting July 1, 2005. Alternatively, the employer contribution rate could be increased by 1.20% on July 1, of 2006, 2008, 2010 and 2012 for a total increase of 4.80%. This graded increase would achieve the same 30-year amortization.*

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**Table 10**

**Illustration of TRS Contribution Rates  
 Needed to Meet a 30-Year Amortization Policy**

Investment Assumption: 7.75%  
 General Wage Increases: 4.50%  
 Contribution Increase effective July 1, 2006: 4.06%

Fiscal Year	TRS Payroll			Total TRS Contribution	Normal Cost	Amortization	Amortization Payment	Amortization Payment Discounted to Valuation Date
	non-MUS	MUS	Total					
2006	560,955,198	41,350,437	602,305,635	14.73%	10.35%	4.38%	26,380,987	25,414,548
2007	586,198,182	38,743,885	624,942,067	18.79%	10.35%	8.44%	52,745,110	47,158,099
2008	612,577,100	35,890,074	648,467,174	18.79%	10.35%	8.44%	54,730,630	45,413,738
2009	640,143,070	33,158,646	673,301,716	18.79%	10.35%	8.44%	56,826,665	43,761,449
2010	668,949,508	30,361,724	699,311,232	18.79%	10.35%	8.44%	59,021,868	42,182,780
2011	699,052,236	27,479,238	726,531,474	18.79%	10.35%	8.44%	61,319,256	40,672,592
2012	730,509,586	24,851,205	755,360,791	18.79%	10.35%	8.44%	63,752,451	39,245,022
2013	763,382,518	22,127,790	785,510,308	18.79%	10.35%	8.44%	66,297,070	37,876,055
2014	797,734,731	19,623,170	817,357,901	18.79%	10.35%	8.44%	68,985,007	36,576,980
2015	833,632,794	17,257,801	850,890,595	18.79%	10.35%	8.44%	71,815,166	35,338,818
2016	871,146,270	15,072,626	886,218,896	18.79%	10.35%	8.44%	74,796,875	34,158,754
2017	910,347,852	13,028,623	923,376,475	18.79%	10.35%	8.44%	77,932,974	33,031,063
2018	951,313,505	11,012,210	962,325,715	18.79%	10.35%	8.44%	81,220,290	31,948,359
2019	994,122,613	9,282,627	1,003,405,240	18.79%	10.35%	8.44%	84,687,402	30,916,160
2020	1,038,858,130	7,744,407	1,046,602,537	18.79%	10.35%	8.44%	88,333,254	29,927,724
2021	1,085,606,746	6,460,927	1,092,067,673	18.79%	10.35%	8.44%	92,170,512	28,981,721
2022	1,134,459,050	5,414,886	1,139,873,936	18.79%	10.35%	8.44%	96,205,360	28,074,638
2023	1,185,509,707	4,448,153	1,189,957,860	18.79%	10.35%	8.44%	100,432,443	27,200,172
2024	1,238,857,644	3,654,129	1,242,511,773	18.79%	10.35%	8.44%	104,867,994	26,358,658
2025	1,294,606,238	3,001,404	1,297,607,642	18.79%	10.35%	8.44%	109,518,085	25,547,529
2026	1,352,863,519	2,384,225	1,355,247,744	18.68%	10.35%	8.33%	112,892,137	24,440,466
2027	1,413,742,377	1,931,294	1,415,673,671	18.68%	10.35%	8.33%	117,925,617	23,693,906
2028	1,477,360,784	1,498,867	1,478,859,651	18.68%	10.35%	8.33%	123,189,009	22,971,174
2029	1,543,842,019	1,221,484	1,545,063,503	18.68%	10.35%	8.33%	128,703,790	22,273,337
2030	1,613,314,910	979,400	1,614,294,310	18.68%	10.35%	8.33%	134,470,716	21,597,545
2031	1,685,914,081	748,285	1,686,662,366	18.68%	10.35%	8.33%	140,498,975	20,942,694
2032	1,761,780,215	603,262	1,762,383,477	18.68%	10.35%	8.33%	146,806,544	20,308,953
2033	1,841,060,324	486,237	1,841,546,561	18.68%	10.35%	8.33%	153,400,829	19,694,844
2034	1,923,908,039	360,973	1,924,269,012	18.68%	10.35%	8.33%	160,291,609	19,099,339
2035	2,010,483,901	262,682	2,010,746,583	18.68%	10.35%	8.33%	167,495,190	18,522,202

Present Value of Future Amortization Payments: 903,329,317

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**Section 6**

**Cash Flows**

The fundamental equation for funding a retirement system is that benefits and administrative expenses must be provided for by contributions (past and future) and investment income. When a retirement system matures, benefits and administrative expenses often exceed contributions. In this case we say the system has a “negative cash flow.” Mature systems are characterized by negative cash flows and large pools of assets. This is natural. Actuarial funding is designed to accumulate large pools of assets which will in turn provide investment income and finance negative cash flows when systems mature. If the fund is looked at as a whole, investment income is usually larger than the difference between contributions and benefit payments. The retirement system’s investment strategy should maximize potential returns at a prudent level of risk while providing for needed cash flows.

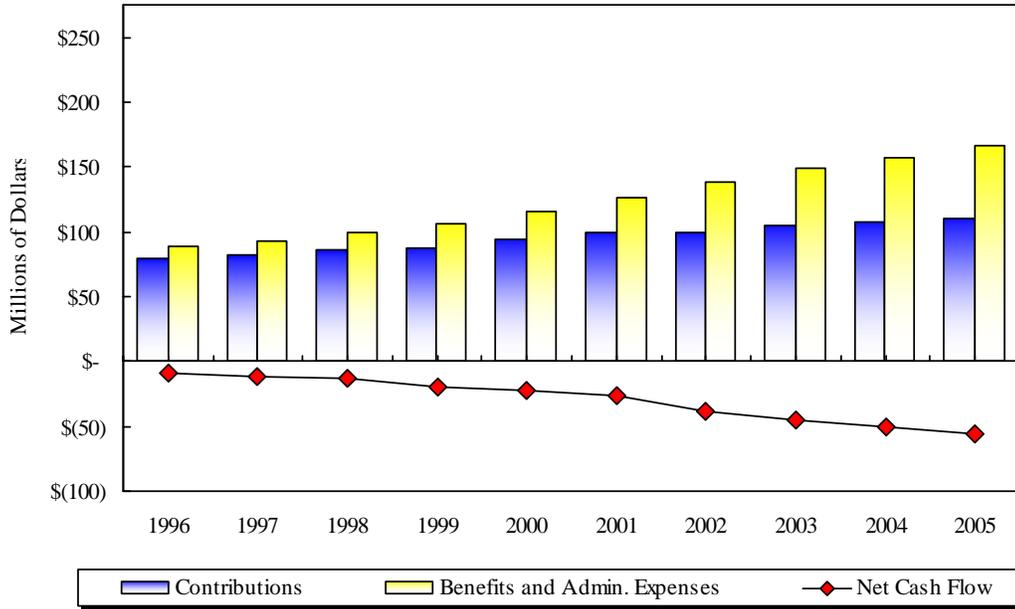
The Table 10 shows that in 1996 the System had a small negative cash flow. In the year ended June 30, 2005 the System’s benefits and administrative expenses exceeded contributions by \$56 million. At the current contribution rates this is projected to increase to \$151 million for the year ending June 30, 2015.

As long as the System had a positive cash flow, there was no need to plan where the funds would come from to pay benefits since benefits could be paid by incoming contributions. A negative cash flow, as defined above, requires planning what funds will be used to pay the difference between benefits and contributions. We are providing these projections to aid in developing the investment strategy for the System’s assets.

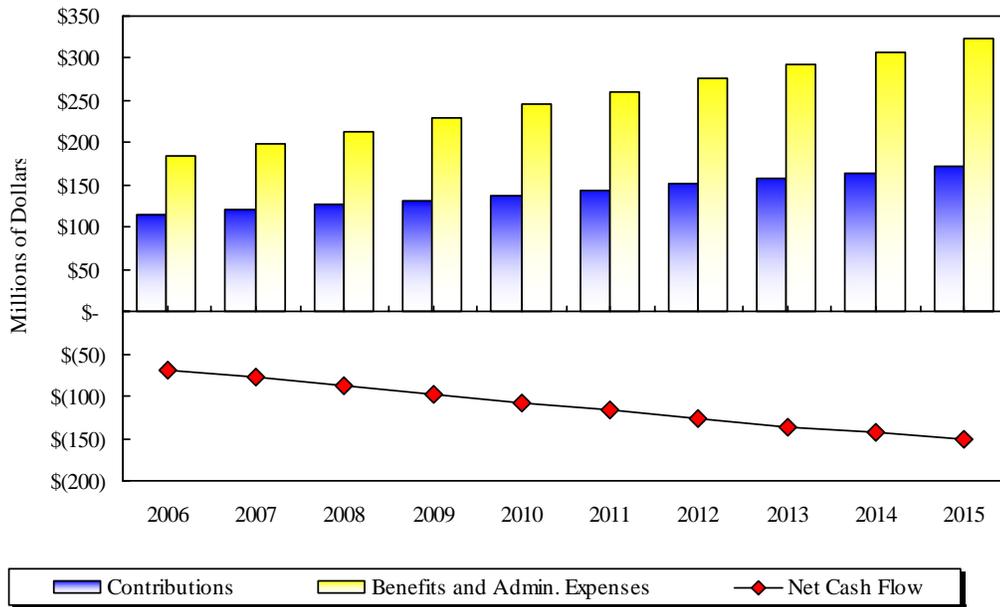
The projected contributions and administrative expenses are based on the actual amounts for the year ended June 30, 2005. Contributions are assumed to increase at the general wage increase assumption of 4.5%. Expenses are assumed to increase at the underlying inflation assumption of 3.5%. The future employer contribution rate is assumed to stay at 7.58% for the purpose of these projections.

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### Cash Flow History



### Cash Flow Projections



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**Table 11**

**Cash Flow History and Projections**

Year Ended <u>June 30,</u>	<b>Historical Cash Flows*</b>		
	<u>Contributions</u>	Benefits & Administrative <u>Expenses</u>	Net <u>Cash Flow</u>
	1996	\$ 80	\$ 89
1997	82	93	(11)
1998	87	100	(13)
1999	88	107	(19)
2000	94	116	(22)
2001	100	126	(26)
2002	100	138	(38)
2003	104	149	(45)
2004	108	158	(50)
2005	111	167	(56)
Year Ending <u>June 30,</u>	<b>Projected Cash Flows*</b>		
	<u>Contributions</u>	Benefits & Administrative <u>Expenses</u>	Net <u>Cash Flow</u>
	2006	\$ 116	\$ 185
2007	121	199	(78)
2008	126	214	(88)
2009	132	229	(97)
2010	138	245	(107)
2011	144	261	(117)
2012	151	277	(126)
2013	157	293	(136)
2014	165	308	(143)
2015	172	323	(151)

\* Millions of Dollars

**Teachers' Retirement System**  
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**Appendix A**

**Actuarial Procedures and Assumptions**

The actuarial assumptions used in this valuation were adopted by the Board for the July 1, 2004 Actuarial Valuation. The Board adopted new economic assumptions at the May 14, 2004 Retirement Board Meeting. Active demographic assumptions were reviewed in the 2002 Investigation of Experience Study. Retired demographic assumptions were last reviewed in the 2000 Investigation of Experience Study.

Tables A-3 through A-6 give rates of decrement for service retirement, disablement, mortality, and other terminations of employment. These rates of decrement are referred to in actuarial literature as the absolute rate of decrement, or  $q'_x$ . Table A-7 shows the assumed probability of retaining membership in the System among members terminating with five or more years of service.

**Actuarial Cost Method**

The actuarial valuation was prepared using the entry age actuarial cost method. Under this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The normal cost was first calculated for each individual member. The normal cost rate is defined to equal the total of the individual normal costs, divided by the total pay rate.

The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets and (b) the actuarial present value of future normal costs is called the unfunded actuarial accrued liability. The unfunded actuarial accrued liability is amortized as a level percentage of the projected salaries of present and future members of the System.

**Records and Data**

The data used in the valuation consist of financial information; records of age, sex, service, salary, contribution rates, and account balances of contributing members; and records of age, sex, and amount of benefit for retired members and beneficiaries. All of the data were supplied by the System and are accepted for valuation purposes without audit.

**Replacement of Terminated Members**

The ages at entry and distribution by sex of future members are assumed to average the same as those of the present members they replace. If the number of active members should increase, it is further assumed that the average entry age of the larger group will be the same, from an actuarial standpoint, as that of the present group. Under these assumptions, the normal cost rates for active members will not vary with the termination of present members.

### **Employer Contributions**

At the time of this valuation, the total employer contribution rate for normal costs and amortization of the unfunded actuarial accrued liability was 7.58% of members' salaries. In accordance with MCA 19-20-604, the employer contribution rate will be reduced by 0.11% when the amortization period of the System's unfunded actuarial accrued liability is 10 years or less according to the System's latest actuarial valuation.

### **Administrative and Investment Expenses**

The administrative and investment expenses of the System are assumed to be funded by investment earnings in excess of 7.75% per year. (Adopted effective July 1, 2004)

### **Valuation of Assets - Actuarial Basis**

The actuarial asset valuation method spreads asset gains and losses over five years. The expected return is determined each year based on the beginning of year market value and actual cash flows during the year. Any difference between the expected market value return and the actual market value return is recognized evenly over a period of five years. The gains and losses are measured starting with the year ended June 30, 1997. Adopted in the July 1, 2000 actuarial valuation.

### **Investment Earnings**

The annual rate of investment earnings of the assets of the System is assumed to be 7.75% per year, compounded annually. (Adopted effective July 1, 2004)

### **Interest on Member Contributions**

Interest on member contributions is assumed to accrue at a rate of 5% per annum, compounded annually. This assumption was set as of July 1, 2004.

### **Postretirement Benefit Increases**

On January 1 of each year, the retirement allowance payable must be increased by 1.5% if the retiree's most recent retirement effective date is at least 36 months prior to January 1 of the year in which the adjustment is to be made.

### **Future Salaries**

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-2. In addition to increases in salary due to merit and longevity, this scale includes an assumed 4.5% annual rate of increase in the general wage level of the membership. The merit and longevity increases for the MUS members did not show a pattern of increasing or decreasing with service at the time of our most recent study. Therefore, the MUS members have a flat 1% merit and longevity assumption. The general wage increase assumption was adopted July 1, 2004 and the merit and longevity scales were adopted July 1, 2002.

Montana University System (MUS) members are assumed to have a 0.63% higher average final compensation to account for the larger than average annual compensation increases observed in the years immediately preceding retirement.

**Service Retirement**

Table A-3 shows the annual assumed rates of retirement among members eligible for service retirement. Separate rates are used when a member is eligible for reduced benefits, for the first year a member is eligible for full benefits, and for the years following the first year a member is eligible for full benefits. The rates for General Members were adopted July 1, 2002. The rates for University Members were adopted July 1, 2002.

**Disablement**

The rates of disablement used in this valuation are illustrated in Table A-4. The rates for General Members were adopted July 1, 2002. The rates for University Members were adopted July 1, 1996.

**Mortality**

The mortality rates used in this valuation are illustrated in Table A-5. A written description of each table used is included in Table A-1. These rates were adopted July 1, 2000.

**Other Terminations of Employment**

The rates of assumed future withdrawal from active service for reasons other than death, disability or retirement are shown for representative ages in Table A-6. These rates were adopted July 1, 2002.

**Benefits for Terminating Members**

Members terminating with less than five years of service are assumed to request an immediate withdrawal of their contributions with interest. Table A-7 shows the assumed probability of retaining membership in the System among members terminating with five or more years of service. These rates were adopted July 1, 2002.

We estimated the present value of future benefits for terminated vested members based on the greater of the present value of their deferred benefit or their available contribution account.

**Part-Time Employees**

The valuation data for active members identify part-time members, but give no indication as to the number of hours worked. As done in the past, we imputed a "part-time percentage" by comparing the pay received with their annual equivalent full-time salary. Their accumulated service was divided by this percentage to reflect their full benefit. Part-time members earning less than \$1,000 during the last year were valued at their current member contribution balance.

**Optional Retirement Program**

The total contribution received for the fiscal year ending June 30, 2005 was \$5,404,913. Based on a contribution rate of 4.04%, we assumed the total ORP payroll for the fiscal year to be \$133,784,975 (\$5,404,913 divided by 4.04%).

**Buybacks, Purchase of Service, and Military Service**

The active liabilities and normal cost were increased to 100.5% of their original value to fund this additional service based on a study of the System's experience for the five calendar years 1995 through 1999. Effective July 1, 2000.

**Probability of Marriage**

If death occurs in active status, all members are assumed to have an eligible surviving spouse and two children. The spouse is assumed to be the same age as the member.

**Blank or Missing Data**

There were 150 cases where the Date of Birth for an active participant was missing in the 2005 data. In these cases, the participant was assumed to have been hired at age 25.

There was 1 active member record in the 2005 data with a blank sex field. Sex was assigned randomly based on the male/female percentage of the entire active population.

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**Table A-1**

**Summary of Valuation Assumptions**  
*(July 1, 2005)*

I. Economic assumptions	
A. General wage increases* (Adopted July 1, 2004)	4.50%
B. Investment return (Adopted July 1, 2004)	7.75%
C. Price Inflation Assumption (Adopted July 1, 2004)	3.50%
D. Growth in membership	0.00%
E. Postretirement benefit increases (Starting three years after retirement)	1.50%
F. Interest on member accounts (Adopted July 1, 2004)	5.00%
II. Demographic assumptions	
A. Individual salary increase due to promotion and longevity (General Member assumptions adopted July 1, 2002) (University Member assumptions adopted July 1, 2000)	Table A-2
B. Retirement (adopted July 1, 2002)	Table A-3
C. Disablement (adopted July 1, 2002) (General Member assumptions adopted July 1, 2002) (University Member assumptions adopted July 1, 1996)	Table A-4
D. Mortality among contributing members, service retired members, and beneficiaries 1994 Group Annuity Mortality Table, with ages set back 3 years for males and ages set back 1 year for females. (adopted July 1, 2000)	Table A-5
E. Mortality among disabled members Based on the IRS Social Security Disabled Mortality Tables published in Revenue Ruling 96-7. Males are 70% of the Male IRS table to age 80, grading into the 1983 Group Annuity Mortality Table for Males between ages 80 and 85. Females are 85% of the IRS table at all ages. (adopted July 1, 2000)	Table A-5
F. Other terminations of employment (adopted July 1, 2002)	Table A-6
G. Probability of retaining membership in the System upon vested termination (adopted July 1, 2002)	Table A-7

\* *Montana University System (MUS) members are assumed to have a 0.63% higher average final compensation to account for the larger than average annual compensation increases observed in the years immediately preceding retirement.*

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**Table A-2**

**Future Salaries**

Years of Service	General Members			University Members		
	Individual Merit & Longevity	General Wage Increase	Total Salary Increase	Individual Merit & Longevity	General Wage Increase	Total Salary Increase
1	4.51%	4.50%	9.01%	1.00%	4.50%	5.50%
2	4.09	4.50	8.59	1.00	4.50	5.50
3	3.46	4.50	7.96	1.00	4.50	5.50
4	2.94	4.50	7.44	1.00	4.50	5.50
5	2.52	4.50	7.02	1.00	4.50	5.50
6	2.21	4.50	6.71	1.00	4.50	5.50
7	1.89	4.50	6.39	1.00	4.50	5.50
8	1.68	4.50	6.18	1.00	4.50	5.50
9	1.47	4.50	5.97	1.00	4.50	5.50
10	1.31	4.50	5.81	1.00	4.50	5.50
11	1.16	4.50	5.66	1.00	4.50	5.50
12	1.00	4.50	5.50	1.00	4.50	5.50
13	0.84	4.50	5.34	1.00	4.50	5.50
14	0.68	4.50	5.18	1.00	4.50	5.50
15	0.58	4.50	5.08	1.00	4.50	5.50
16	0.47	4.50	4.97	1.00	4.50	5.50
17	0.37	4.50	4.87	1.00	4.50	5.50
18	0.26	4.50	4.76	1.00	4.50	5.50
19	0.21	4.50	4.71	1.00	4.50	5.50
20	0.16	4.50	4.66	1.00	4.50	5.50
21	0.11	4.50	4.61	1.00	4.50	5.50
22 & Up	0.00	4.50	4.50	1.00	4.50	5.50

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**Table A-3**

**Retirement  
Annual Rates**

Age	General Members			University Members		
	Eligible for Reduced Benefits	First Year Eligible for Full Benefits	Thereafter	Eligible for Reduced Benefits	First Year Eligible for Full Benefits	Thereafter
45		18.0%	9.5%		5.0%	4.9%
46		18.0	9.5		5.0	4.9
47		12.5	9.5		5.0	4.9
48		12.5	9.5		5.0	4.9
49	*	12.5	9.5	*	5.0	4.9
50	4.0%	12.5	9.5	1.9%	8.0	4.9
51	4.0	16.0	9.5	2.2	8.0	4.9
52	4.5	16.0	9.5	2.5	8.0	6.0
53	4.5	16.0	9.5	2.8	8.0	6.0
54	5.0	16.0	9.5	3.1	12.0	6.0
55	5.5	22.0	14.0	3.4	15.0	6.0
56	6.0	22.0	14.0	3.7	15.0	6.0
57	6.5	22.0	14.0	4.0	15.0	7.0
58	6.5	22.0	15.0	4.3	15.0	7.0
59	7.0	22.0	18.0	4.7	15.0	9.0
60	*	22.0	22.0	*	19.0	10.0
61		22.0	22.0		19.0	14.0
62		27.0	27.0		24.0	24.0
63		22.0	22.0		14.0	14.0
64		25.0	25.0		20.0	20.0
65		35.0	35.0		33.0	33.0
66		30.0	30.0		23.0	23.0
67		24.0	24.0		23.0	23.0
68		22.0	22.0		23.0	23.0
69		22.0	22.0		23.0	23.0
70		**	**		**	**

\* All benefits are unreduced after attaining age 60. Reduced benefits are not available before age 50.

\*\* Immediate retirement is assumed at age 70 or over.

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**Table A-4**

**Disablement  
Annual Rates**

Age	General Members	University Members
25	.010%	.003%
30	.010	.006
35	.020	.012
40	.040	.021
45	.080	.036
50	.130	.055
55	.180	.083
60	.260	.126

**Table A-5**

**Mortality  
Annual Rates**

Age	Contributing Members, Service Retired Members and Beneficiaries		Disabled Members	
	Men	Women	Men	Women
25	.06%	.03%	1.92%	1.02%
30	.07	.03	2.15	1.26
35	.08	.04	2.39	1.50
40	.09	.07	2.69	1.75
45	.13	.09	3.01	2.04
50	.19	.13	3.36	2.38
55	.32	.21	3.72	2.77
60	.56	.39	4.07	3.23
65	1.01	.76	4.46	3.76
70	1.80	1.27	5.13	4.36
75	2.85	2.04	6.22	5.32
80	4.52	3.54	7.50	6.84
85	7.55	6.10	11.48	9.30

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**Table A-6**

**Other Terminations of Employment**  
**Among Members Not Eligible to Retire**  
**Annual Rates**

<u>Years of Service</u>	<u>General Members</u>	<u>University Members</u>
1	30.0%	33.0%
2	16.0	17.0
3	11.0	13.0
4	9.0	11.0
5	8.0	9.0
6	7.7	8.3
7	7.3	7.7
8	7.0	7.0
9	6.6	6.6
10	6.2	6.2
11	5.8	5.8
12	5.4	5.4
13	5.0	5.0
14	4.6	4.6
15	4.2	4.2
16	3.8	3.8
17	3.4	3.4
18 and up	3.0	3.0

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**Table A-7**

**Probability of Retaining Membership in the System  
Upon Vested Termination**

<u>Age</u>	<u>Probability of Retaining Membership</u>
25	54%
30	54
35	58
40	58
45	60
50	70
55	75

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**Appendix B**

**Summary of Benefit Provisions**

Effective Date	September 1, 1937
Vesting Period	5 years. No benefits are payable unless the member has a vested right, except the return of employee contributions with interest.
Final Compensation	Average of highest 3 consecutive years of earned compensation.
Normal Form of Benefits	Life only annuity. All benefits cease upon death; however, in no event will the member receive less than the amount of employee contributions with interest.
Normal Retirement Benefits	
Eligibility:	25 years of service or age 60 and 5 years of service.
Benefit:	The retirement benefit is equal to 1/60 of final compensation for each year of service.
Early Retirement Benefits	
Eligibility:	5 years of service and age 50.
Benefit:	The retirement benefit is calculated in the same manner as described for normal retirement, but the benefit is reduced 1/2 of 1% for each of the first 60 months early and 3/10 of 1% for each of the next 60 months early.

**Death Benefit**

- Eligibility:** 5 years of service.
- Benefit:** The death benefit is equal to 1/60 of final compensation for each year of service accrued at date of death, with an actuarial adjustment based on the relation of the member's age at death to the beneficiary's age. A monthly benefit of \$200 is paid to each child until age 18. In addition, a lump-sum benefit of \$500 is paid upon the death of an active or retired member.

**Disability Benefit**

- Eligibility:** 5 years of service.
- Benefit:** The disability benefit is equal to 1/60 of final compensation for each year of service accrued at date of disability. The minimum benefit is 1/4 of the final compensation.

**Withdrawal Benefits**

With less than 5 years of service, the accumulated employee contributions with interest are returned. With more than 5 years, the member may elect a refund of contributions with interest or leave the contributions and interest in the System and retain a vested right to retirement benefits.

**Contributions**

**Member:** 7.15% of compensation.  
**Employer:** 7.58% of compensation.

MCA 19-20-604 specifies that the employer contribution rate will be reduced by 0.11% when the amortization period of the System's unfunded actuarial accrued liability is 10 years or less according to the System's latest actuarial valuation.

**Interest on Member  
Contributions**

Interest on member contributions is currently being credited at a rate of 4.0% per annum.

**Cost-of-Living Adjustments**

On January 1 of each year, the retirement allowance payable must be increased by 1.5% if the retiree's most recent retirement effective date is at least 36 months prior to January 1 of the year in which the adjustment is to be made.

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**Appendix C**

**Valuation Data**

This valuation is based upon the membership of the System as of July 1, 2005. Membership data were supplied by the System and accepted for valuation purposes without audit. However, tests were performed to ensure that the data are sufficiently accurate for valuation purposes.

Table C-1 contains summaries of the data for contributing members. For full-time members, values shown in the tables are the numbers of members and their total and average annual salaries. For part-time members, only the numbers of members are shown.

Active Members	Number	Annual Salaries in Millions
Full-Time Members	12,523	\$ 523.9
Part-Time Members*	<u>5,019</u>	<u>62.0</u>
Total Contributing Members*	17,542	\$ 585.9
Active Members with Annual Compensation less than \$1,000	<u>697</u>	
Total Active Members	18,239	

*\* Excludes part-time members with annual compensation less than \$1,000.*

Table C-2 presents distributions of the following:

- Members receiving service retirement benefits.
- Members receiving disability retirement benefits.
- Survivors of deceased retired members receiving benefits.
- Survivors of deceased active members.
- Child beneficiaries.
- Terminated vested members.

Table C-3 is a reconciliation of membership data from July 1, 2004 to July 1, 2005.

**Appendix C  
(continued)**

The following is a summary of retired members and beneficiaries currently receiving benefits:

Type of Annuitant	Number	Annual Benefits in Thousands	Average Annual Benefits
Service Retirement	9,242	\$ 156,658	\$ 16,951
Survivors of Deceased Retired Members	<u>794</u>	<u>8,430</u>	<u>10,617</u>
Total Service Retirement (including survivors)	10,036	165,088	16,450
Disability Retirement	200	1,759	8,794
Survivors of Deceased Active Members	405	3,227	7,967
Child Beneficiaries	<u>23</u>	<u>55</u>	<u>2,400</u>
Total Annuitants	10,664	\$ 170,129	\$ 15,954

Terminated Members with Contributions Not Withdrawn	Number
Vested Terminated Members	1,649
Non-Vested Terminated Members	<u>8,569</u>
Total Terminated Members	10,218

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**Table C-1**

**Active Members Distribution of  
Full-Time Employees and Salaries  
*as of July 1, 2005***

**Number of Employees - By Age Group - All Members**

Age	Completed Years of Service											Totals		
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39		40+	
<25	16	90	12	1	-	-	-	-	-	-	-	-	-	119
25 to 29	33	230	214	327	132	-	-	-	-	-	-	-	-	936
30 to 34	9	98	102	222	627	83	-	-	-	-	-	-	-	1,141
35 to 39	7	69	75	136	397	536	85	-	-	-	-	-	-	1,305
40 to 44	11	71	70	133	279	380	424	137	-	-	-	-	-	1,505
45 to 49	9	51	40	108	272	371	388	562	135	-	-	-	-	1,936
50 to 54	10	42	43	100	271	345	456	461	605	184	-	-	-	2,517
55 to 59	8	29	32	68	166	235	336	347	368	476	93	-	-	2,158
60 to 64	2	12	13	21	47	56	92	115	112	134	116	10	-	730
65 to 69	-	1	1	5	9	11	25	13	14	25	20	22	-	146
70 and up	1	1	1	2	4	2	3	3	4	4	3	2	-	30
Totals	106	694	603	1,123	2,204	2,019	1,809	1,638	1,238	823	232	34	-	12,523

**Teachers' Retirement System  
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**Table C-1**

**Active Members Distribution of  
Full-Time Employees and Salaries  
*as of July 1, 2005***

**Annual Salaries in Thousands - By Age Group - All Members**

Age	Completed Years of Service											Totals	
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39		40+
<25	168	2,199	283	29	-	-	-	-	-	-	-	-	2,679
25 to 29	364	6,017	5,704	9,132	4,011	-	-	-	-	-	-	-	25,228
30 to 34	101	2,793	2,975	6,816	21,038	3,246	-	-	-	-	-	-	36,969
35 to 39	83	2,031	2,330	4,159	14,119	21,925	3,708	-	-	-	-	-	48,355
40 to 44	155	2,096	2,169	4,231	9,892	16,086	19,191	6,600	-	-	-	-	60,420
45 to 49	97	1,530	1,386	3,501	9,414	15,458	18,071	27,459	6,640	-	-	-	83,556
50 to 54	160	1,331	1,515	3,311	9,816	14,638	21,132	22,776	30,876	9,372	-	-	114,927
55 to 59	122	902	1,109	2,368	6,356	10,203	15,641	18,049	19,608	25,785	5,086	-	105,229
60 to 64	12	388	390	901	1,992	2,379	4,286	5,924	6,162	7,558	6,546	500	37,038
65 to 69	-	47	41	209	350	495	1,183	744	862	1,366	1,337	1,472	8,106
70 and up	14	33	9	21	106	48	265	194	212	205	179	116	1,402
Totals	1,276	19,367	17,911	34,678	77,094	84,478	83,477	81,746	64,360	44,286	13,148	2,088	523,909

**Teachers' Retirement System  
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**Table C-1**

**Active Members Distribution of  
Full-Time Employees and Salaries  
*as of July 1, 2005***

**Average Annual Salary - By Age Group - All Members**

Age	Completed Years of Service											Totals	
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39		40+
<25	10,479	24,436	23,582	29,069	-	-	-	-	-	-	-	-	22,512
25 to 29	11,032	26,162	26,656	27,925	30,384	-	-	-	-	-	-	-	26,953
30 to 34	11,270	28,504	29,170	30,702	33,553	39,107	-	-	-	-	-	-	32,401
35 to 39	11,856	29,429	31,065	30,583	35,565	40,905	43,628	-	-	-	-	-	37,054
40 to 44	14,093	29,524	30,992	31,813	35,457	42,331	45,262	48,173	-	-	-	-	40,147
45 to 49	10,791	29,991	34,648	32,416	34,609	41,665	46,574	48,860	49,184	-	-	-	43,158
50 to 54	15,998	31,700	35,233	33,113	36,221	42,430	46,343	49,406	51,035	50,933	-	-	45,661
55 to 59	15,245	31,121	34,664	34,826	38,290	43,417	46,550	52,013	53,282	54,171	54,690	-	48,762
60 to 64	6,107	32,363	29,976	42,912	42,373	42,486	46,582	51,515	55,021	56,406	56,433	49,997	50,738
65 to 69	-	47,329	41,260	41,748	38,884	45,028	47,323	57,253	61,584	54,641	66,834	66,894	55,524
70 and up	14,359	32,874	9,329	10,537	26,428	23,956	88,174	64,527	53,009	51,155	59,747	57,936	46,704
Totals	12,045	27,909	29,706	30,880	34,979	41,842	46,145	49,906	51,987	53,810	56,673	61,398	41,836

**Teachers' Retirement System  
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**Table C-1**

**Active Members Distribution of  
Part-Time Employees  
*as of July 1, 2005***

**Number of Employees - By Age Group - All Members**

Age	Completed Years of Service											Totals	
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39		40+
<25	103	40	5	11	1	-	-	-	-	-	-	-	160
25 to 29	213	140	56	46	23	-	-	-	-	-	-	-	478
30 to 34	87	88	46	74	92	33	-	-	-	-	-	-	420
35 to 39	106	88	56	64	90	68	29	-	-	-	-	-	501
40 to 44	90	116	93	125	145	57	26	24	-	-	-	-	676
45 to 49	94	108	87	155	232	118	51	40	16	-	-	-	901
50 to 54	64	78	95	132	210	143	60	32	34	9	-	-	857
55 to 59	51	48	52	65	117	109	60	27	18	26	8	-	581
60 to 64	17	34	23	45	55	38	31	16	16	11	4	1	291
65 to 69	8	6	9	18	31	13	13	3	3	1	2	-	107
70 and up	3	6	6	5	14	4	7	-	1	1	-	-	47
Totals	836	752	528	740	1,010	583	277	142	88	48	14	1	5,019

**Teachers' Retirement System**  
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**Table C-2**

**Distribution of Inactive Lives**

**Members Receiving Service Retirement Benefits as of July 1, 2005**

<u>Age</u>	<u>Number of Persons</u>		<u>Annual Benefits in Thousands</u>		<u>Average Annual Benefits</u>
<50	29	\$	564	\$	19,444
50 to 54	387		7,497		19,372
55 to 59	1,255		25,232		20,105
60 to 64	1,899		38,016		20,019
65 to 69	1,678		31,389		18,706
70 to 74	1,388		24,145		17,395
75 to 79	977		13,907		14,235
80 to 84	703		8,409		11,961
85 to 89	510		4,646		9,111
90 and up	416		2,854		6,861
Total	9,242		156,658		16,951

**Members Receiving Disability Retirement Benefits as of July 1, 2005**

<u>Age</u>	<u>Number of Persons</u>		<u>Annual Benefits in Thousands</u>		<u>Average Annual Benefits</u>
<50	12	\$	103	\$	8,609
50 to 54	21		180		8,567
55 to 59	42		407		9,684
60 to 64	33		329		9,979
65 to 69	28		248		8,846
70 to 74	19		167		8,806
75 to 79	22		175		7,945
80 to 84	11		77		6,988
85 to 89	10		63		6,292
90 and up	2		10		5,014
Total	200		1,759		8,794

**Teachers' Retirement System**  
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**Table C-2**

**Distribution of Inactive**

**Survivors of Deceased Retired Members as of July 1, 2005**

<u>Age</u>	<u>Number of Persons</u>		<u>Annual Benefits in Thousands</u>		<u>Average Annual Benefits</u>
<50	28	\$	197	\$	7,045
50 to 54	24		258		10,734
55 to 59	46		503		10,930
60 to 64	66		782		11,854
65 to 69	86		1,086		12,623
70 to 74	107		1,450		13,549
75 to 79	117		1,364		11,655
80 to 84	149		1,396		9,367
85 to 89	105		934		8,900
90 and up	66		461		6,984
Total	794		8,430		10,617

**Survivors of Deceased Active Members as of July 1, 2005**

<u>Age</u>	<u>Number of Persons</u>		<u>Annual Benefits in Thousands</u>		<u>Average Annual Benefits</u>
<50	78	\$	412	\$	5,280
50 to 54	33		229		6,945
55 to 59	63		526		8,343
60 to 64	46		519		11,278
65 to 69	40		372		9,307
70 to 74	34		296		8,699
75 to 79	41		418		10,205
80 to 84	33		284		8,599
85 to 89	24		122		5,094
90 and up	13		49		3,758
Total	405		3,227		7,967

**Teachers' Retirement System**  
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**Table C-2**

**Distribution of Inactive Lives**

**Terminated Vested Members as of July 1, 2005**  
**Number of Persons**

<u>Age</u>	<u>Number</u>
<25	-
25 to 29	6
30 to 34	81
35 to 39	165
40 to 44	215
45 to 49	304
50 to 54	385
55 to 69	357
60 to 64	118
65 to 69	18
70 & above	-
	<hr/>
Total	1,649

**Child Beneficiaries as of July 1, 2005**  
**Number of Persons**

<u>Age</u>	<u>Number</u>
<5	-
5 to 6	2
7 to 8	1
9 to 10	2
11 to 12	3
13 to 14	6
15 to 16	5
17 to 18	4
	<hr/>
Total	23

**Teachers' Retirement System**  
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**Table C-3**

**Data Reconciliation**

	Active Contributing <u>Members</u>	Vested Terminated <u>Members</u>	Service Retired <u>Members</u>	Disabled <u>Members</u>	Survivors and <u>Beneficiaries</u>
July 1, 2004 Valuation	17,614	1,620	8,969	199	1,207
Refunds and NonVested Terminations	(1,350)	(72)			
Vested Terminations	(226)	226			
Service Retirements	(424)	(41)	465		
Disability Retirements	(5)	(3)		8	
Deaths with Beneficiary	(3)	(1)	(83)	(5)	92
Deaths without Beneficiary			(149)	(4)	(50)
New Entrants	1,838				
Rehires	98	(92)	(6)	-	
Other	-	12	46	2	(27)
July 1, 2005 Valuation	17,542	1,649	9,242	200	1,222

**Teachers' Retirement System  
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**Appendix D**

**Comparative Schedules**

This section contains tables that summarize the experience of the System shown in present and past valuation reports.

Table D-1 shows a summary of the active members covered as of the various valuation dates.

Table D-2 shows a summary of the retired and inactive members as of the various valuation dates.

Table D-3 summarizes the contribution rates determined by each annual actuarial valuation.

**Teachers' Retirement System  
A Component Unit of the State of Montana**

**Table D-1**

**Active Membership Data**

Active Members									
Valuation Date (July 1)	Full-Time Members	Part-Time Members**	Total Contributing Members**	Part-Time Members Annual Compensation less than \$1,000	Annual Full-Time Salaries in Thousands	Average Full-Time Annual Salary	Average Age**	Average Years of Service**	Average Hire Age**
1987	13,105	1,955	15,060	*	\$340,481	\$25,981	*	*	*
1989	12,546	2,541	15,087	*	339,866	27,090	*	*	*
1992	13,502	3,141	16,643	*	401,092	29,706	42.4	11.6	30.8
1994	14,938	2,637	17,575	377	416,968	27,914	42.5	11.0	31.5
1996	13,251	5,444	18,695	1,295	424,085	32,004	43.3	11.6	31.7
1998	13,545	4,647	18,192	776	459,191	33,901	44.0	12.1	31.9
2000	13,289	4,245	17,534	886	477,160	35,906	44.5	12.2	32.3
2002	12,796	4,650	17,446	723	486,204	37,997	45.0	12.2	32.8
2004	12,601	5,013	17,614	637	510,808	40,537	45.6	12.2	33.4
2005	12,523	5,019	17,542	697	523,909	41,836	45.8	12.4	33.4

\* *Not available.*

\*\* *Excludes part-time active members with annual compensation less than \$1,000.*

**Teachers' Retirement System  
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**Table D-2**

**Retired and Inactive Membership Data**

Valuation Date (July 1)	All Annuitants					Terminated Members	
	Number	Annual Benefits in Thousands	Average Annual Benefit	Average Current Age	Average Age at Retirement	Number Vested Terminated	Number Non-Vested Terminated
1987	6,036	\$ 43,236	\$ 7,163	*	*	*	*
1989	6,330	49,546	7,827	*	*	*	*
1992	6,927	63,483	9,165	*	*	*	*
1994	7,530	78,183	10,383	*	*	1,105	5,722
1996	7,896	87,351	11,063	*	*	1,152	6,479
1998	8,362	99,040	11,844	69.6	57.3	1,190	8,158
2000	9,021	117,227	12,995	69.3	57.0	1,256	9,308
2002	9,768	139,131	14,244	69.1	56.8	1,485	8,231
2004	10,375	159,776	15,400	69.1	56.7	1,620	7,861
2005	10,664	170,129	15,954	69.3	56.7	1,649	8,569

\* *Not available.*

**Teachers' Retirement System**  
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**Table D-3**

**Contribution Rates**

Valuation Date (July 1)	Contribution Rates			Normal Cost Rate	UAAL Rate*
	Employee	Employer	Total		
1992	7.044%	7.459%	14.503%	9.876	4.627%
1994	7.044%	7.470%	14.514%	9.494	5.020%
1996	7.044%	7.470%	14.514%	9.328	5.186%
1998	7.044%	7.470%	14.514%	8.880	5.634%
2000	7.15%	7.58%**	14.73%	9.71	5.02%
2002	7.15%	7.58%	14.73%	10.33	4.40%
2004	7.15%	7.58%	14.73%	10.34%	4.39%
2005	7.15%	7.58%	14.73%	10.35%	4.38%

\* The unfunded actuarial accrued liability rate is the amount available to amortize the unfunded actuarial accrued liability. It is equal to the total contribution rate, minus the normal cost rate.

\*\* The 1999 Legislation which passed the 1.5% GABA, also added a 0.11% state general fund contribution.

**Teachers' Retirement System**  
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**Appendix E**

**Glossary**

The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases the definitions have been modified for specific applicability to the Teachers' Retirement System Retirement System. Defined terms are capitalized throughout this Appendix.

**Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement, and retirement; changes in compensation, rates of investment earnings, and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

**Actuarial Cost Method**

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.

**Actuarial Gain (Loss)**

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

**Actuarial Present Value**

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

**Actuarial Valuation**

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

**Actuarial Value of Assets**

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

**Actuarially Equivalent**

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

**Amortization Payment**

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

**Entry Age Actuarial Cost Method**

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

**Normal Cost**

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

**Actuarial Accrued Liability**

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

**Unfunded Actuarial Accrued Liability**

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

**Accrued Benefit**

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.  
Projected Benefits

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

**Unaccrued Benefit**

The excess of an individual's Projected Benefits over the Accrued Benefits as of a specified date.

# **STATISTICAL SECTION**

**REVENUES BY SOURCE & EXPENSES BY TYPE**

**CONTRIBUTION RATES**

**MEMBERSHIP**

**ACTIVE and INACTIVE MEMBERS**

**RETIRED MEMBERS and BENEFIT RECIPIENTS**

**LOCATION OF BENEFIT RECIPIENTS**



**Teachers' Retirement System**  
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**Revenues By Source**

<u>Year</u>	<u>Employee Contributions</u>	<u>Employer Contributions</u>	<u>Investment Income</u>	<u>Other</u>	<u>Total</u>
1995 – 1996	39,174,350	40,626,732	98,083,315	189,823	178,074,220
1996 – 1997	40,348,306	41,639,722	104,797,668	101,267	186,886,963
1997 – 1998	41,937,700	44,476,127	102,174,892	200,083	188,788,802
1998 – 1999	42,641,714	44,986,852	102,501,716	122,732	190,253,014
1999 – 2000	45,599,246	47,848,084	112,924,791	696,779	207,068,900
2000 – 2001	48,277,894	50,989,948	162,712,312	617,258	262,597,412
2001 – 2002	47,872,258	51,518,712	99,058,806	762,677	199,212,453
2002 – 2003	50,221,491	53,276,950	99,289,817	758,298	203,546,556
2003 – 2004	51,382,941	55,773,716	133,206,267	770,631	241,133,555
2004 – 2005	52,900,262	57,150,364	81,833,887	655,910	192,540,423

**Expenses By Type**

<u>Year</u>	<u>Benefit Payments</u>	<u>Withdrawals</u>	<u>Investment Expenses</u>	<u>Administrative Expenses</u>	<u>Total</u>
1995 – 1996	83,763,230	4,158,612	12,711,571	684,885	101,318,298
1996 – 1997	88,631,324	3,839,562	12,596,802	675,961	105,743,649
1997 – 1998	94,204,970	4,826,198	10,381,523	881,452	110,294,143
1998 – 1999	100,028,083	5,126,013	9,686,951	1,360,660	116,201,707
1999 – 2000	109,231,029	5,271,306	10,667,097	1,293,805	126,463,237
2000 – 2001	118,841,895	5,370,493	10,243,034	1,715,782	136,171,204
2001 – 2002	130,006,163	6,472,327	5,481,637	1,606,737	143,566,864
2002 – 2003	140,229,496	6,468,324	3,709,410	1,860,967	152,268,198
2003 – 2004	150,270,797	5,843,069	3,886,875	1,506,694	161,507,435
2004 – 2005	161,247,366	4,340,382	5,988,496	1,560,820	173,137,064

**Teachers' Retirement System**  
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**Contribution Rates**

EMPLOYEE

1937 - 1973	5.000%
1973 - 1975	5.125%
1975 - 1977	6.125%
1977 - 1983	6.187%
1983 - 1999	7.044%
1999 -	7.150%

EMPLOYER

1937 - 1945	NONE
1945 - 1959	3.750%
1959 - 1969	4.000%
1969 - 1971	4.500%
1971 - 1975	5.125%
1975 - 1977	6.250%
1977 - 1981	6.312%
1981 - 09/30/81	6.432%
10/01/81 - 06/30/83	6.463%
1983 - 1985	7.320%
1985 - 1989	7.428%
1989 - 1993	7.459%
01/01/94 -	7.470%

STATE

2000 -	0.11%
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*Unless otherwise noted, contribution rate changes occur on July 1.*

**Teachers' Retirement System**  
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**Membership**

**Active and Inactive Members**

<u>Period Ended</u>	<u>Active Members</u>	<u>Inactive Vested Members</u>	<u>Inactive Non-vested</u>	<u>Total</u>
June 30, 1996	18,332	1,012	6,050	25,394
June 30, 1997	18,222	1,173	7,560	26,955
June 30, 1998	18,205	1,179	8,061	27,445
June 30, 1999	18,287	1,209	8,612	28,108
June 30, 2000	18,423	1,245	9,212	28,880
June 30, 2001	18,530	1,359	10,034	29,923
June 30, 2002	17,262	1,611	8,834	27,707
June 30, 2003	18,285	1,519	7,736	27,540
June 30, 2004	18,257	1,607	7,723	27,587
June 30, 2005	18,247	1,640	8,431	28,318

**Retired Members and Benefit Recipients**

<u>Period Ended</u>	<u>Retirement</u>	<u>Survivors</u>	<u>Disability</u>	<u>Child Benefits</u>	<u>Total</u>
June 30, 1996	7,011	370	273	34	7,688
June 30, 1997	7,212	366	279	44	7,901
June 30, 1998	7,400	376	276	36	8,088
June 30, 1999	7,661	377	282	38	8,358
June 30, 2000	7,927	399	291	23	8,640
June 30, 2001	8,288	398	294	36	9,016
June 30, 2002	8,615	401	295	31	9,342
June 30, 2003	8,957	401	294	30	9,682
June 30, 2004	9,246	403	294	24	9,970
June 30, 2005	9,578	403	294	24	10,299

**Teachers' Retirement System  
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**Location of Benefit Recipients**

Alabama	7	Michigan	15	Utah	49
Alaska	30	Minnesota	73	Vermont	3
Arizona	242	Mississippi	2	Virginia	21
Arkansas	9	Missouri	22	Washington	369
California	149	Montana	7,995	West Virginia	5
Colorado	99	Nebraska	25	Wisconsin	28
Connecticut	5	Nevada	95	Wyoming	89
Florida	46	New Jersey	3	District of Columbia	1
Georgia	8	New Mexico	24	APO	3
Hawaii	11	New York	16	Australia	4
Idaho	134	North Carolina	20	Canada	16
Illinois	16	North Dakota	79	Denmark	1
Indiana	5	Ohio	11	Egypt & UAE	2
Iowa	15	Oklahoma	19	England	2
Kansas	14	Oregon	160	Germany	1
Kentucky	5	Pennsylvania	6	New Zealand	2
Louisiana	6	South Carolina	6	Puerto Rico	1
Maine	3	South Dakota	49	Scotland	1
Maryland	4	Tennessee	13	Thailand	1
Massachusetts	6	Texas	70	TOTAL*	10,116

\*183 recipients receive two benefits